TOSOT

Service Manual

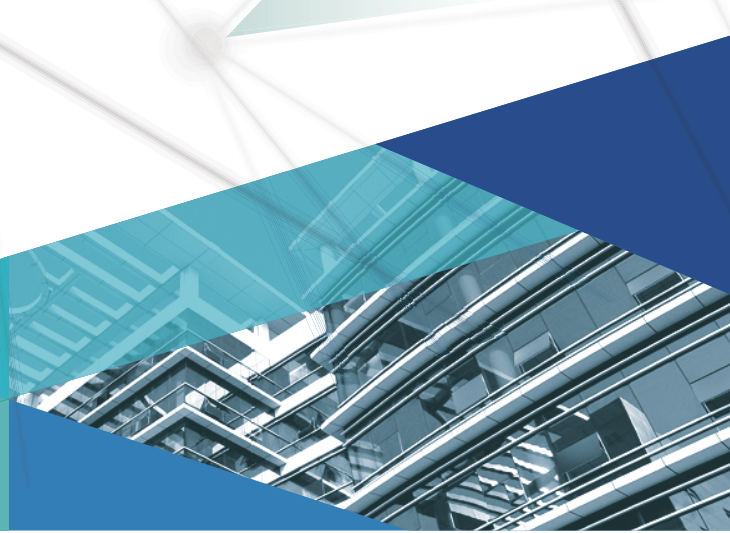


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1. Summary

Indoor Unit:

TW09HXCA5AI
TW09HXCA5AI
TW09HXCA5DI
TW09HXCA5DI
TW09HXCA5DI
TW09HXCA5DI
TW09CXCA5DI

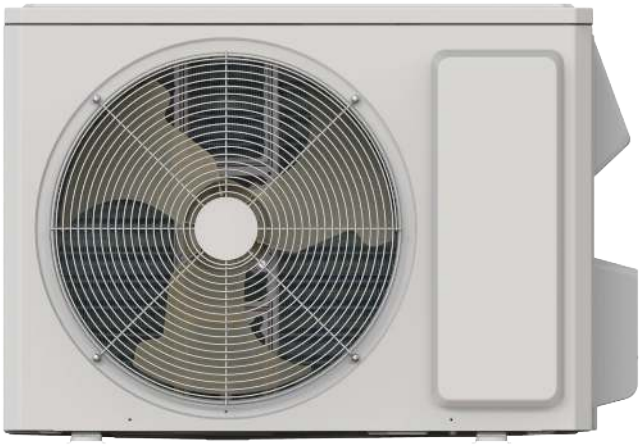


Outdoor Unit:

TW09HXCA5AO TW09HXCA5DO
TW12HXCA5AO TW12HXCA5DO
TW09CXCA5DO



TW18HXCA5DO



TW24HXCA5DO



Remote Controller:

YAP1F7F(WiFi)



Model list:

No.	Product code	Indoor model	Indoor product code	Outdoor model	Outdoor product code
1	CB599000800_Y16846	TW09HXCA5AI	CB599N00800_Y16846	TW09HXCA5AO	CB574W01600_Y16846
2	CB599001100_202332	TW09HXCA5DI	CB599N01100_202332	TW09HXCA5DO	CB574W00900_202332
3	CB599000600_Y16846	TW09CXCA5DI	CB599N00600_Y16846	TW09CXCA5DO	CB574W01000_Y16846
4	CB599000900_Y16846	TW12HXCA5AI	CB599N00900_Y16846	TW12HXCA5AO	CB574W01400_Y16846
5	CB599000900_Y16846	TW12HXCA5DI	CB599N01000_202332	TW12HXCA5DO	CB574W01500_202332
6	CB599000700_Y16846	TW18HXCA5DI	CB599N00700_Y16846	TW18HXCA5DO	CB574W03200_Y16846
7	CB599000500_Y16846	TW24HXCA5DI	CB599N00500_Y16846	TW24HXCA5DO	CB444W15900_Y16846

2. Specifications

2.1 Specification Sheet

Product Code			CB599000600_Y16846	CB599001100_202332
Power Supply	Rated Voltage	V~	208/230	208/230
	Rated Frequency	Hz	60	60
	Phases		1	1
Power Supply Mode			Outdoor	Outdoor
Cooling Capacity		Btu/h	9100	9100
Heating Capacity		Btu/h	/	10000
Cooling Power Input		W	805	805
Heating Power Input		W	/	781
Cooling Current		A	3.75	3.75
Heating Current		A	/	3.9
Rated Input		W	1350	1450
Rated Current		A	6.5	6.5
EER		(Btu/h)/W	11.30	11.30
COP		(Btu/h)/W	/	12.80
SEER			19.5(SEER)/19.5(SEER2)	19.5(SEER)/19.5(SEER2)
HSPF			/	10(HSPF)8.8(HSPF2)
Air Flow Volume		CFM	353/282/264/229/211/194/158	353/282/264/229/211/194/158
Dehumidifying Volume		Pint/d	1.69	1.69
Application Area		yd^2	14-22	14-22
Indoor Unit	Indoor Unit Model		TW09CXCA5DI	TW09HXCA5DI
	Product Code of Indoor Unit		CB599N00600_Y16846	CB599N01100_202332
	Fan Type		Cross-flow	Cross-flow
	Fan Diameter Length(DXL)	mm	Φ94X630	Φ94X630
	Cooling Speed	r/min	1350/1150/1100/1000/950/850/750	1350/1150/1100/1000/950/850/750
	Heating Speed	r/min	/	1300/1100/1050/1000/950/850/800
	Fan Motor Power Output	W	20	20
	Fan Motor RLA	A	0.30	0.30
	Fan Motor Capacitor	μF	1.5	1.5
	Heater Power Input	W	/	72
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ5	Φ5
	Evaporator Row-fin Gap	mm	2-1.3	2-1.3
	Evaporator Coil Length (LXDXW)	mm	634X22.8X266.7	634X22.8X266.7
	Swing Motor Model		MP24HF	MP24HF
	Swing Motor Power Output	W	1.5	1.5
	Fuse Current	A	3.15	3.15
	Sound Pressure Level	dB (A)	41/37/34/32/31/28/26	Cooling:41/37/34/32/31/28/26 Heating:41/36/34/32/31/28/26
	Sound Power Level	dB (A)	51/47/44/42/41/38/36	Cooling:51/47/44/42/41/38/36 Heating:51/46/44/42/41/38/36
	Dimension (WXHXD)	inch	32 7/8X10 53/64X7 7/8	32 7/8X10 53/64X7 7/8
	Package Carton Dimension (LXWXH)	inch	35 1/32X12 61/64X10 15/64	35 1/32X12 61/64X10 15/64
	Package Dimension (LXWXH)	inch	35 15/64X13 37/64X10 43/64	35 15/64X13 37/64X10 43/64
	Net Weight	lb	19.8	19.8
	Gross Weight	lb	24.3	24.3

Outdoor Unit	Outdoor Unit Model		TW09CXCA5DO	TW09HXCA5DO
	Product Code of Outdoor Unit		CB574W01000_Y16846	CB574W00900_202332
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO.,LTD	ZHUHAI LANDA COMPRESSOR CO.,LTD
	Compressor Model		QXF-A082zC170	QXF-A082zC170
	Compressor Oil		ZE-G;ES RB68GX or equivalent	ZE-G;ES RB68GX or equivalent
	Compressor Type		Rotary	Rotary
	Compressor LRA.	A	/	/
	Compressor RLA	A	5.20	5.20
	Compressor Power Input	W	756.6	756.6
	Compressor Overload Protector		/	/
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ400	Φ400
	Fan Motor Speed	rpm	850	850
	Fan Motor Power Output	W	30	30
	Fan Motor RLA	A	0.40	0.40
	Fan Motor Capacitor	μF	/	/
	Outdoor Unit Air Flow Volume	CFM	1148	1148
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7	Φ7
	Condenser Rows-fin Gap	mm	1-1.2	1-1.2
	Condenser Coil Length (LXDXW)	mm	666X19.05X527	666X19.05X527
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Maximum Allowable Pressure	MPa	4.3	4.3
	Set Temperature Range	°F	61~86	61~86
	Cooling Operation Ambient Temperature Range	°F	0~118	0~118
	Heating Operation Ambient Temperature Range	°F	/	-13~75
	Throttling Method		Capillary	Capillary
	Defrosting Method		/	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IPX4	IPX4
	Sound Pressure Level	dB (A)	49	51
	Sound Power Level	dB (A)	59	61
	Dimension (WXHXD)	inch	28 13/16X21 27/32X12 63/64	28 13/16X21 27/32X12 63/64
	Dimension of Carton Box (LXWXH)	inch	31 9/64X14 11/16X23 15/64	31 9/64X14 11/16X23 15/64
	Dimension of Package(LXWXH)	inch	31 17/64X14 51/64X24 7/32	31 17/64X14 51/64X24 7/32
	Net Weight	lb	54	56
	Gross Weight	lb	59.5	61.7
	Refrigerant		R410A	R410A
	Refrigerant Charge	oz	24.70	24.7
Connection Pipe	Length	ft	24.6	24.6
	Gas Additional Charge	oz/ft	0.16	0.215
	Outer Diameter Liquid Pipe	inch	1/4	1/4
	Outer Diameter Gas Pipe	inch	3/8	3/8
	Max. Height Distance	ft	39.37	39.37
	Max. Length Distance	ft	65.62	65.62
	Note: The connection pipe applies metric diameter.			

The above data is subject to change without notice. Please refer to the nameplate of the unit.

Product Code			CB599000800_Y16846
Power Supply	Rated Voltage	V~	115
	Rated Frequency	Hz	60
	Phases		1
Power Supply Mode			Outdoor
Cooling Capacity		Btu/h	9100
Heating Capacity		Btu/h	10000
Cooling Power Input		W	805
Heating Power Input		W	814
Cooling Current		A	8.7
Heating Current		A	9.2
Rated Input		W	1450
Rated Current		A	17.5
EER		(Btu/h)/W	11.3
COP		(Btu/h)/W	12.3
SEER			19.5(SEER)19.5(SEER2)
HSPF			9.8(HSPF)8.6(HSPF2)
Air Flow Volume		CFM	353/282/264/229/211/194/158
Dehumidifying Volume		Pint/d	1.69
Application Area		yd^2	14-22
Indoor Unit	Indoor Unit Model		TW09HXCA5AI
	Product Code of Indoor Unit		CB599N00800_Y16846
	Fan Type		Cross-flow
	Fan Diameter Length(DXL)	mm	Φ94X630
	Cooling Speed	r/min	1350/1150/1100/1000/950/850/750
	Heating Speed	r/min	1300/1100/1050/1000/950/850/800
	Fan Motor Power Output	W	20
	Fan Motor RLA	A	0.40
	Fan Motor Capacitor	μF	4
	Heater Power Input	W	68
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ5
	Evaporator Row-fin Gap	mm	2-1.3
	Evaporator Coil Length (LXDXW)	mm	634X22.8X266.7
	Swing Motor Model		MP24HF
	Swing Motor Power Output	W	1.5
	Fuse Current	A	3.15
	Sound Pressure Level	dB (A)	Cooling:41/37/35/33/31/28/26 Heating:41/36/35/34/31/29/27
	Sound Power Level	dB (A)	Cooling:51/47/45/43/41/38/36 Heating:51/46/45/44/41/39/37
	Dimension (WXHXD)	inch	32 7/8X10 53/64X7 7/8
	Package Carton Dimension (LXWXH)	inch	35 1/32X12 61/64X10 15/64
	Package Dimension (LXWXH)	inch	35 15/64X13 37/64X10 43/64
	Net Weight	lb	19.8
	Gross Weight	lb	24.3

Outdoor Unit	Outdoor Unit Model		TW09HXCA5AO
	Product Code of Outdoor Unit		CB574W01600_Y16846
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO.,LTD
	Compressor Model		QXF-N075zC170A
	Compressor Oil		FW68DA
	Compressor Type		Rotary
	Compressor LRA.	A	/
	Compressor RLA	A	10.50
	Compressor Power Input	W	640
	Compressor Overload Protector		/
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ400
	Fan Motor Speed	rpm	900
	Fan Motor Power Output	W	30
	Fan Motor RLA	A	0.63
	Fan Motor Capacitor	μF	/
	Outdoor Unit Air Flow Volume	CFM	1148
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7
	Condenser Rows-fin Gap	mm	1-1.2
	Condenser Coil Length (LXDXW)	mm	666X19.05X527
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Maximum Allowable Pressure	MPa	4.3
	Set Temperature Range	°F	61~86
	Cooling Operation Ambient Temperature Range	°F	0~118
	Heating Operation Ambient Temperature Range	°F	-13~75
	Throttling Method		Capillary
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IPX4
	Sound Pressure Level	dB (A)	51
	Sound Power Level	dB (A)	61
	Dimension (WXHXD)	inch	28 13/16X21 27/32X12 63/64
	Dimension of Carton Box (LXWXH)	inch	31 9/64X14 11/16X23 15/64
	Dimension of Package(LXWXH)	inch	31 17/64X14 51/64X24 7/32
	Net Weight	lb	59.5
	Gross Weight	lb	65
	Refrigerant		R410A
	Refrigerant Charge	oz	24.34
Connection Pipe	Length	ft	24.6
	Gas Additional Charge	oz/ft	0.22
	Outer Diameter Liquid Pipe	inch	1/4
	Outer Diameter Gas Pipe	inch	3/8
	Max. Height Distance	ft	39.37
	Max. Length Distance	ft	65.6
	Note: The connection pipe applies metric diameter.		

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Product Code			CB599000900_Y16846	CB599001000_202332
Power Supply	Rated Voltage	V~	115	208/230
	Rated Frequency	Hz	60	60
	Phases		1	1
Power Supply Mode			Outdoor	Outdoor
Cooling Capacity		Btu/h	12000	12000
Heating Capacity		Btu/h	12000	12000
Cooling Power Input		W	1380	1380
Heating Power Input		W	1004	1004
Cooling Current		A	15	6.2
Heating Current		A	10.9	4.5
Rated Input		W	1650	1650
Rated Current		A	17.9	7.4
EER		(Btu/h)/W	8.7	8.7
COP		(Btu/h)/W	11.95	11.95
SEER			17.5(SEER) 17.5(SEER2)	17.5(SEER) 17.5(SEER2)
HSPF			10(HSPF) 8.5(HSPF2)	10(HSPF) 8.5(HSPF2)
Air Flow Volume		CFM	424/353/324/277/247/224/182	424/353/324/277/247/224/182
Dehumidifying Volume		Pint/d	2.96	2.96
Application Area		yd^2	19-29	19-29
Indoor Unit	Indoor Unit Model		TW12HXCA5AI	TW12HXCA5DI
	Product Code of Indoor Unit		CB599N00900_Y16846	CB599N01000_202332
	Fan Type		Cross-flow	Cross-flow
	Fan Diameter Length(DXL)	mm	Φ94X630	Φ94X630
	Cooling Speed	r/min	1550/1200/1120/1050/980/920/750/500	1550/1200/1120/1050/980/920/750/500
	Heating Speed	r/min	1450/1200/1140/1080/1020/960/900	1450/1200/1140/1080/1020/960/900
	Fan Motor Power Output	W	15	15
	Fan Motor RLA	A	0.40	0.40
	Fan Motor Capacitor	μF	/	/
	Heater Power Input	W	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ5	Φ5
	Evaporator Row-fin Gap	mm	2-1.3	2-1.3
	Evaporator Coil Length (LXDXW)	mm	634X22.8X266.7	634X22.8X266.7
	Swing Motor Model		MP24HF	MP24HF
	Swing Motor Power Output	W	1.5	1.5
	Fuse Current	A	3.15	3.15
	Sound Pressure Level	dB (A)	Cooling:47/39/38/35/33/32/27/25 Heating:44/39/37/36/34/32/30	Cooling:47/39/38/35/33/32/27/25 Heating:44/39/37/36/34/32/30
	Sound Power Level	dB (A)	Cooling:57/49/48/45/43/42/37/35 Heating:54/49/47/46/44/42/40	Cooling:57/49/48/45/43/42/37/35 Heating:54/49/47/46/44/42/40
	Dimension (WXHXD)	inch	32 7/8X10 53/64X7 7/8	32 7/8X10 53/64X7 7/8
	Package Carton Dimension (LXWXH)	inch	35 3/64X12 61/64X10 15/64	35 3/64X12 61/64X10 15/64
	Package Dimension (LXWXH)	inch	35 15/64X13 37/64X10 43/64	35 15/64X13 37/64X10 43/64
	Net Weight	lb	19.8	19.8
	Gross Weight	lb	24.3	24.3

Outdoor Unit	Outdoor Unit Model		TW12HXCA5AO	TW12HXCA5DO
	Product Code of Outdoor Unit		CB574W01400_Y16846	CB574W01500_202332
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO.,LTD	ZHUHAI LANDA COMPRESSOR CO.,LTD
	Compressor Model		FTz-AN108ACBD	FTz-AN108ACBD
	Compressor Oil		FW68DA or equivalent	FW68DA or equivalent
	Compressor Type		Rotary	Rotary
	Compressor LRA.	A	/	/
	Compressor RLA	A	15.10	7.30
	Compressor Power Input	W	857	857
	Compressor Overload Protector		/	/
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ400	Φ400
	Fan Motor Speed	rpm	900	900
	Fan Motor Power Output	W	30	30
	Fan Motor RLA	A	0.70	0.60
	Fan Motor Capacitor	μF	/	/
	Outdoor Unit Air Flow Volume	CFM	1148	1148
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7	Φ7
	Condenser Rows-fin Gap	mm	1-1.2	1-1.2
	Condenser Coil Length (LXDXW)	mm	677X19.05X528	677X19.05X528
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Maximum Allowable Pressure	MPa	4.3	4.3
	Set Temperature Range	°F	61~86	61~86
	Cooling Operation Ambient Temperature Range	°F	0~118	0~118
	Heating Operation Ambient Temperature Range	°F	-13~75	-13~75
	Throttling Method		Capillary	Capillary
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IPX4	IPX4
	Sound Pressure Level	dB (A)	52	52
	Sound Power Level	dB (A)	62	62
	Dimension (WXHXD)	inch	28 13/16X21 27/32X12 63/64	28 13/16X21 27/32X12 63/64
	Dimension of Carton Box (LXWXH)	inch	31 9/64X14 11/16X23 15/64	31 9/64X14 11/16X23 15/64
	Dimension of Package(LXWXH)	inch	31 17/64X14 51/64X24 7/32	31 17/64X14 51/64X24 7/32
	Net Weight	lb	59.5	57.33
	Gross Weight	lb	65.0	62.8
	Refrigerant		R410A	R410A
	Refrigerant Charge	oz	24.7	27.5
Connection Pipe	Length	ft	24.6	24.6
	Gas Additional Charge	oz/ft	0.22	0.22
	Outer Diameter Liquid Pipe	inch	1/4	1/4
	Outer Diameter Gas Pipe	inch	3/8	3/8
	Max. Height Distance	ft	39.99	39.99
	Max. Length Distance	ft	65.6	65.6
	Note: The connection pipe applies metric diameter.			

The above data is subject to change without notice. Please refer to the nameplate of the unit.

Product Code			CB599000700_Y16846	CB599000500_Y16846
Power Supply	Rated Voltage	V~	208/230	208/230
	Rated Frequency	Hz	60	60
	Phases		1	1
Power Supply Mode			Outdoor	Outdoor
Cooling Capacity		Btu/h	17600	22000
Heating Capacity		Btu/h	19100	24000
Cooling Power Input		W	1750	1896
Heating Power Input		W	1750	2051
Cooling Current		A	7.95	8.5
Heating Current		A	7.95	9.5
Rated Input		W	2300	2400
Rated Current		A	9.5	12
EER		(Btu/h)/W	10.05	11.6
COP		(Btu/h)/W	10.90	11.7
SEER			17.5(SEER) 17.5(SEER2)	18(SEER) 18(SEER2)
HSPF			9(HSPF) 8.5(HSPF2)	10(HSPF) 8.5(HSPF2)
Air Flow Volume		CFM	618/512/471/436/395/336/283	677/589/559/500/471/441/412
Dehumidifying Volume		Pint/d	3.8	5.28
Application Area		yd^2	28-41	28-41
Indoor Unit	Indoor Unit Model		TW18HXCA5DI	TW24HXCA5DI
	Product Code of Indoor Unit		CB599N00700_Y16846	CB599N00500_Y16846
	Fan Type		Cross-flow	Cross-flow
	Fan Diameter Length(DXL)	mm	Φ106X706	Φ111.5X830
	Cooling Speed	r/min	1350/1200/1120/1050/980/860/750	1350/1200/1100/1000/950/900/850
	Heating Speed	r/min	1350/1200/1120/1050/950/850/750	1350/1200/1100/1000/950/900/850
	Fan Motor Power Output	W	45	45
	Fan Motor RLA	A	0.7	0.45
	Fan Motor Capacitor	μF	/	/
	Heater Power Input	W	/	/
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ5	Φ7
	Evaporator Row-fin Gap	mm	2-1.2	2-1.4
	Evaporator Coil Length (LXDXW)	mm	700X22.8X381	840X25.4X381
	Swing Motor Model		MP35CJ	MP35CP
	Swing Motor Power Output	W	2.5	2.5
	Fuse Current	A	3.15	3.15
	Sound Pressure Level	dB (A)	Cooling:50/46/44/42/40/36/32 Heating:49/46/44/41/38/34/30	Cooling: 51/47/45/42/40/38/36 Heating: 52/48/45/42/40/38/37
	Sound Power Level	dB (A)	Cooling:60/56/54/52/50/46/42 Heating:59/56/54/51/48/44/40	Cooling: 61/57/55/52/50/48/46 Heating: 62/58/55/52/50/48/47
	Dimension (WXHXD)	inch	37 1/8X13 7/64X9 11/16	42 7/16 X13 7/64 X9 11/16
	Package Carton Dimension (LXWXH)	inch	39 7/32X15 5/8X12 9/32	44 13/32 X15 63/64X12 23/32
	Package Dimension (LXWXH)	inch	39 13/32X15 15/16X12 43/64	44 39/64/32X16 19/64X13 7/64
	Net Weight	lb	28.7	33.1
	Gross Weight	lb	34.2	39.7

Outdoor Unit	Outdoor Unit Model		TW18HXCA5DO	TW24HXCA5DO
	Product Code of Outdoor Unit		CB574W03200_Y16846	CB444W15900_Y16846
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO. LTD.	ZHUHAI LANDA COMPRESSOR CO. LTD.
	Compressor Model		QXF-A139zH170A	FTz-SM151AXBD
	Compressor Oil		FW68DA or equivalent	FW68DA or equivalent
	Compressor Type		Rotary	Rotary
	Compressor LRA.	A	25.0	35.00
	Compressor RLA	A	9.35	10.39
	Compressor Power Input	W	1295	1330
	Compressor Overload Protector		/	HPC 115/95U1 KSD115℃
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ420	Φ520
	Fan Motor Speed	rpm	940	880
	Fan Motor Power Output	W	30	60
	Fan Motor RLA	A	0.9	0.73
	Fan Motor Capacitor	μF	/	3.5
	Outdoor Unit Air Flow Volume	CFM	1480	1883
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7	Φ7
	Condenser Rows-fin Gap	mm	2-1.4	2-1.4
	Condenser Coil Length (LXDXW)	mm	787X23X514	839X38.1X616
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Maximum Allowable Pressure	MPa	4.3	4.3
	Set Temperature Range	˚F	61~86	61~86
	Cooling Operation Ambient Temperature Range	˚F	0~118	0~118
	Heating Operation Ambient Temperature Range	˚F	-13~75	-13~75
	Throttling Method		Capillary	Electron expansion valve
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IPX4	IPX4
	Sound Pressure Level	dB (A)	57	57
	Sound Power Level	dB (A)	67	67
	Dimension (WXHXD)	inch	31 37/64X21 27/32X13 25/32	37 23/32X25 63/64X15 53/64
	Dimension of Carton Box (LXWXH)	inch	34 7/32X15 35/64X23 25/64	40 33/64X17 53/64X28 5/32
	Dimension of Package(LXWXH)	inch	34 21/64X15 43/64X24 13/32	40 5/8X17 61/64X29 1/64
	Net Weight	lb	71.7	97
	Gross Weight	lb	77.2	106.9
	Refrigerant		R410A	R410A
	Refrigerant Charge	oz	44.1	52.9
Connection Pipe	Length	ft	24.6	24.6
	Gas Additional Charge	oz/ft	0.2	0.5
	Outer Diameter Liquid Pipe	inch	1/4	1/4
	Outer Diameter Gas Pipe	inch	1/2	5/8
	Max. Height Distance	ft	32.8	32.8
	Max. Length Distance	ft	82	82.0
	Note: The connection pipe applies metric diameter.			

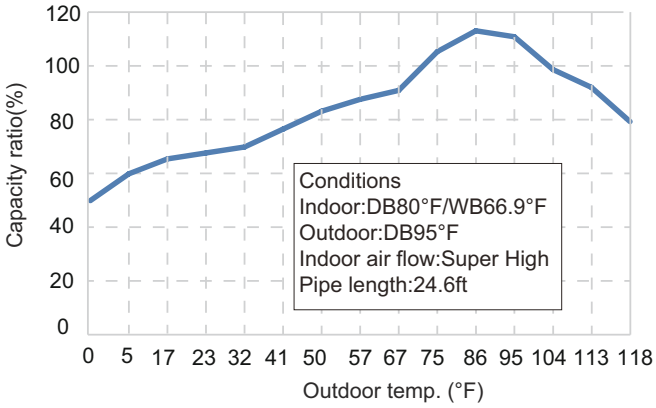
The above data is subject to change without notice. Please refer to the nameplate of the unit.

2.2 Capacity Variation Ratio According to Temperature

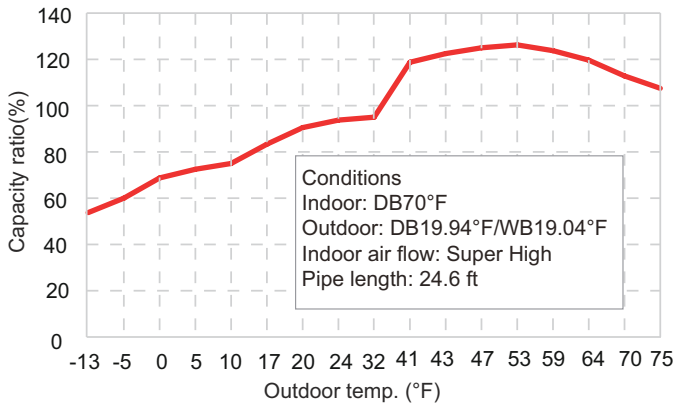
09/12K:

Cooling operation ambient temperature range is 0°F~118°F.
Heating operation ambient temperature range is -13°F~75°F.

Cooling:



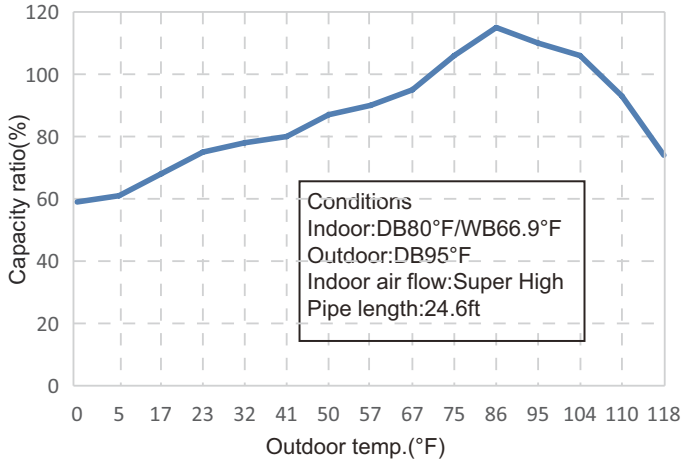
Heating:



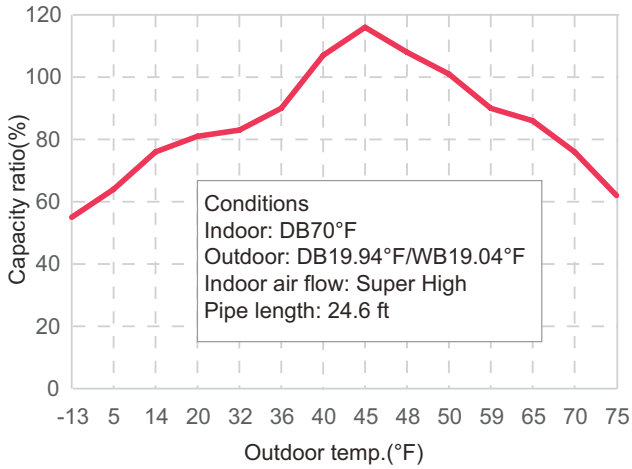
18K:Cooling and Heating models

Cooling operation ambient temperature range is 0°F~118°F.
Heating operation ambient temperature range is -13°F~75°F.

Cooling:



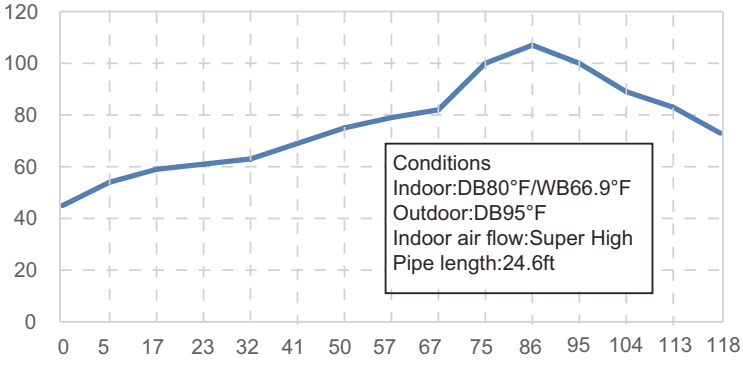
Heating:



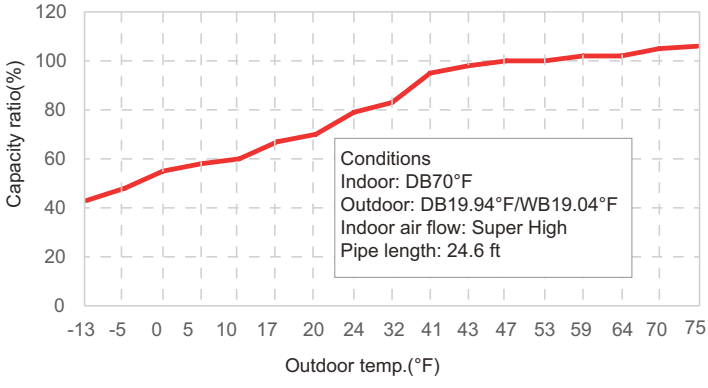
24K

Cooling operation ambient temperature range is 0°F~118°F.
Heating operation ambient temperature range is -13°F~75°F.

Cooling:



Heating:



2.3 Cooling and Heating Data Sheet in Rated Frequency

Cooling:

Rated cooling condition(°F) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit
Indoor	Outdoor		PSIG	T1 (°F)	T2 (°F)		
80/66.9	95/-	09K	130~142	in:46.4~51.8 out:51.8~57.2	in:167~181.4 out:98.6~118.4	Super High	High
		12K	130~142	in:46.4~51.8 out:51.8~57.2	in:167~181.4 out:98.6~118.4		
		18K	130~142	in:46.4~51.8 out:51.8~57.2	in:167~181.4 out:98.6~118.4		
		24K	130~142	in:46.4~51.8 out:51.8~57.2	in:167~181.4 out:98.6~118.4		

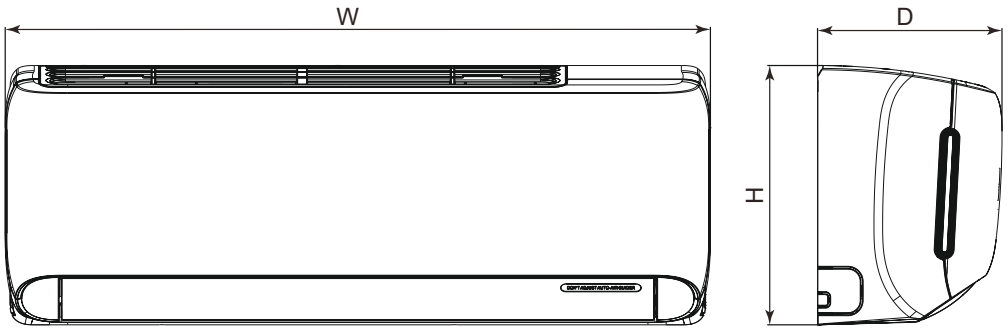
Heating:

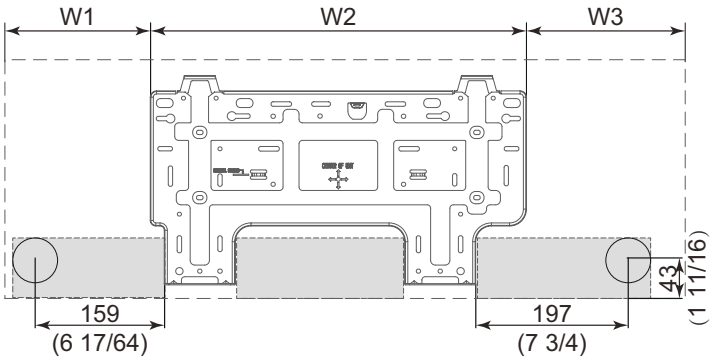
Rated heating condition(°F) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit
Indoor	Outdoor		PSIG	T1 (°F)	T2 (°F)		
70/60	19.94/19.04	09K	362~406	in:167~181.4 out:98.6~113	in:33.8~37.4 out:35.6~42.8	Super High	High
		12K	362~406	in:167~181.4 out:98.6~113	in:33.8~37.4 out:35.6~42.8		
		18K	507~550	in:167~181.4 out:98.6~113	in:33.8~37.4 out:35.6~42.8		
		24K	507~550	in:167~181.4 out:98.6~113	in:33.8~37.4 out:35.6~42.8		

Instruction:
T1: Inlet and outlet pipe temperature of evaporator
T2: Inlet and outlet pipe temperature of condenser
P: Pressure at the side of big valve
Connection pipe length: 24.6 ft.

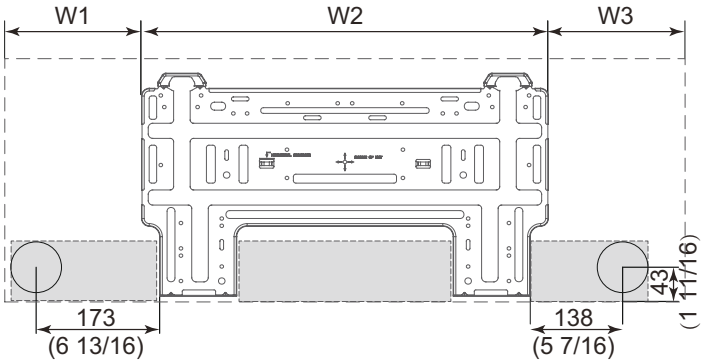
3. Outline Dimension Diagram

3.1 Indoor Unit

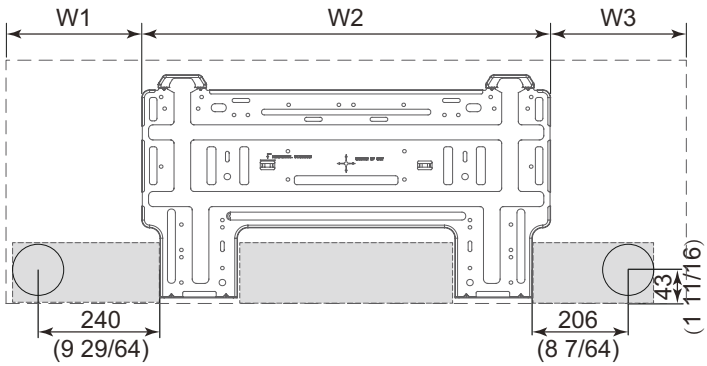




TW09HXCA5AI
TW09HXCA5DI
TW09CXCA5DI
TW12HXCA5AI
TW12HXCA5DI



TW18HXCA5DI



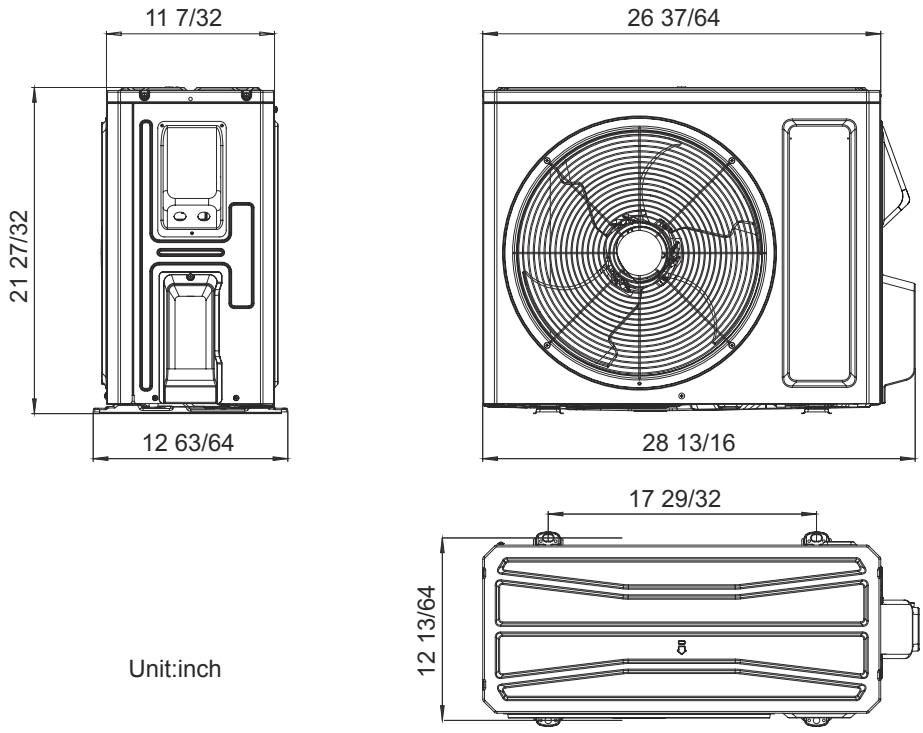
TW24HXCA5DI

Unit:inch

Model	W	H	D	W1	W2	W3
09/12K	32 7/8	10 53/64	7 7/8	7 1/64	18 3/16	7 43/64
18K	37 1/8	13 7/64	9 11/16	7 35/64	22 7/64	7 31/64
24K	42 7/16	13 7/64	9 11/16	6 15/64	22 7/64	10 5/32

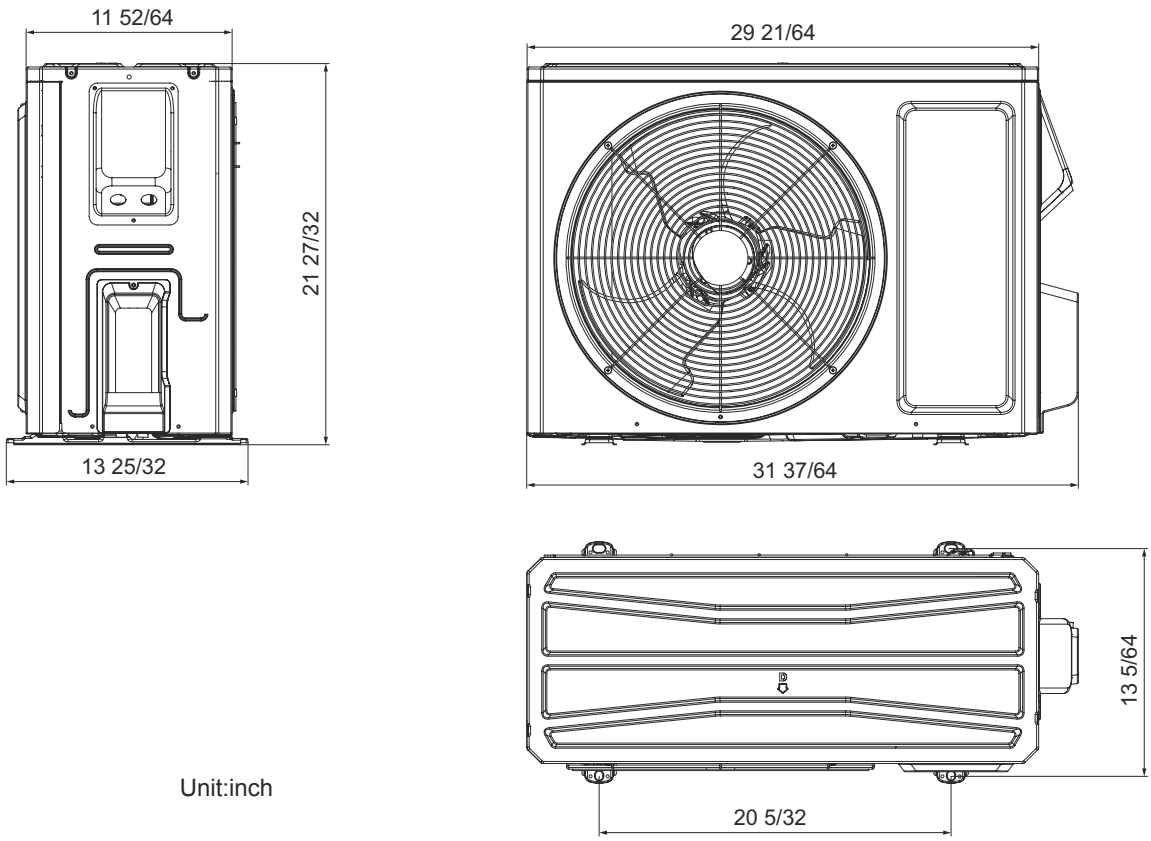
3.2 Outdoor Unit

TW09HXCA5AO
TW09CXCA5DO
TW12HXCA5DO
TW09HXCA5DO
TW12HXCA5AO



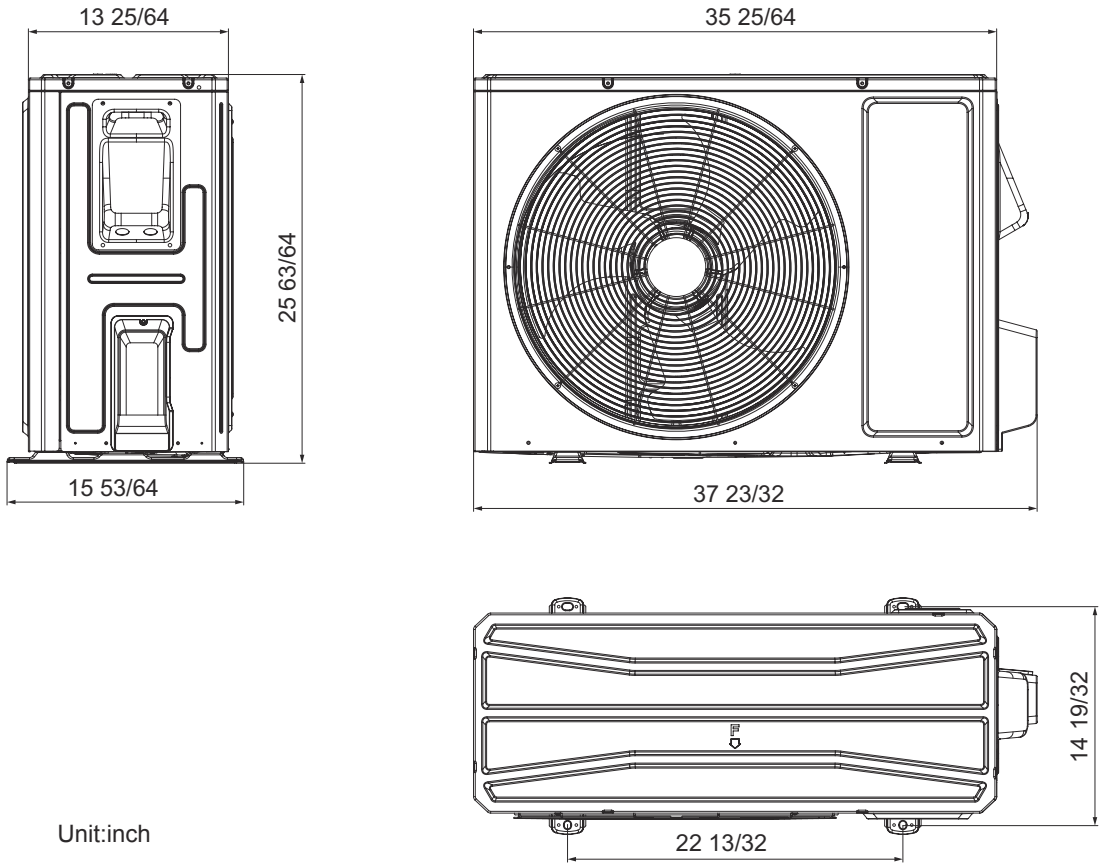
Unit:inch

TW12HXCA5DO



Unit:inch

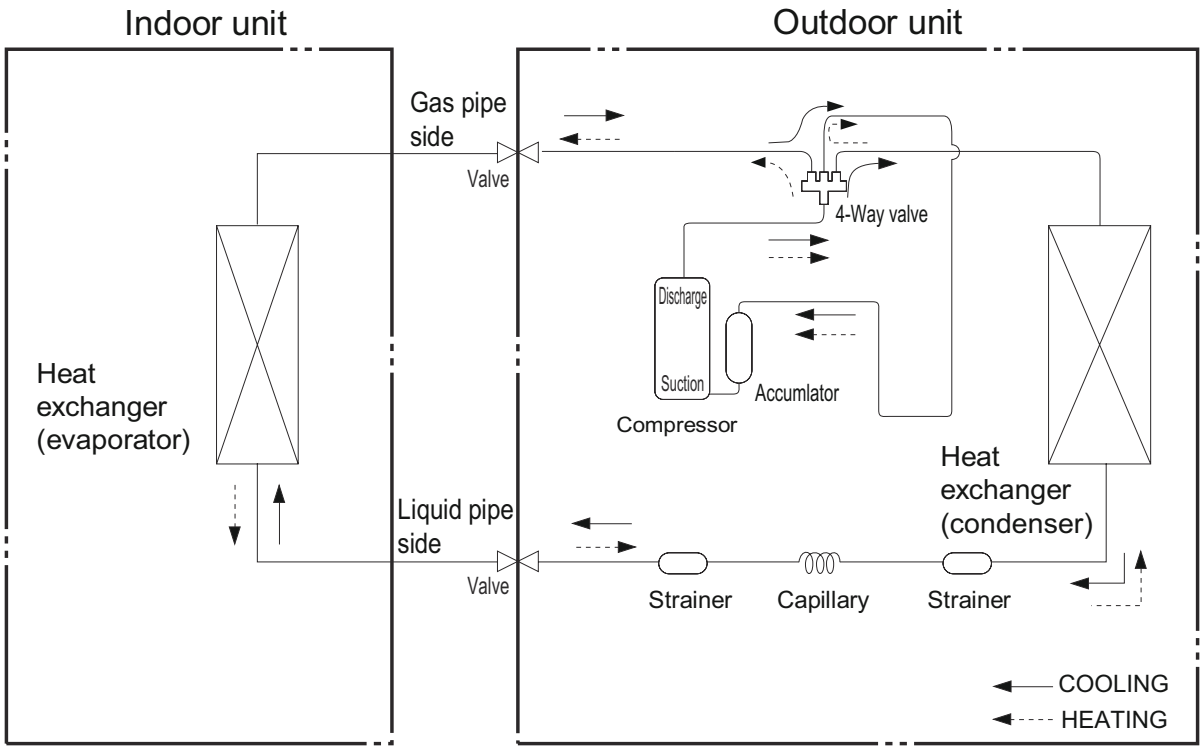
TW24HXCA5DO



Unit:inch

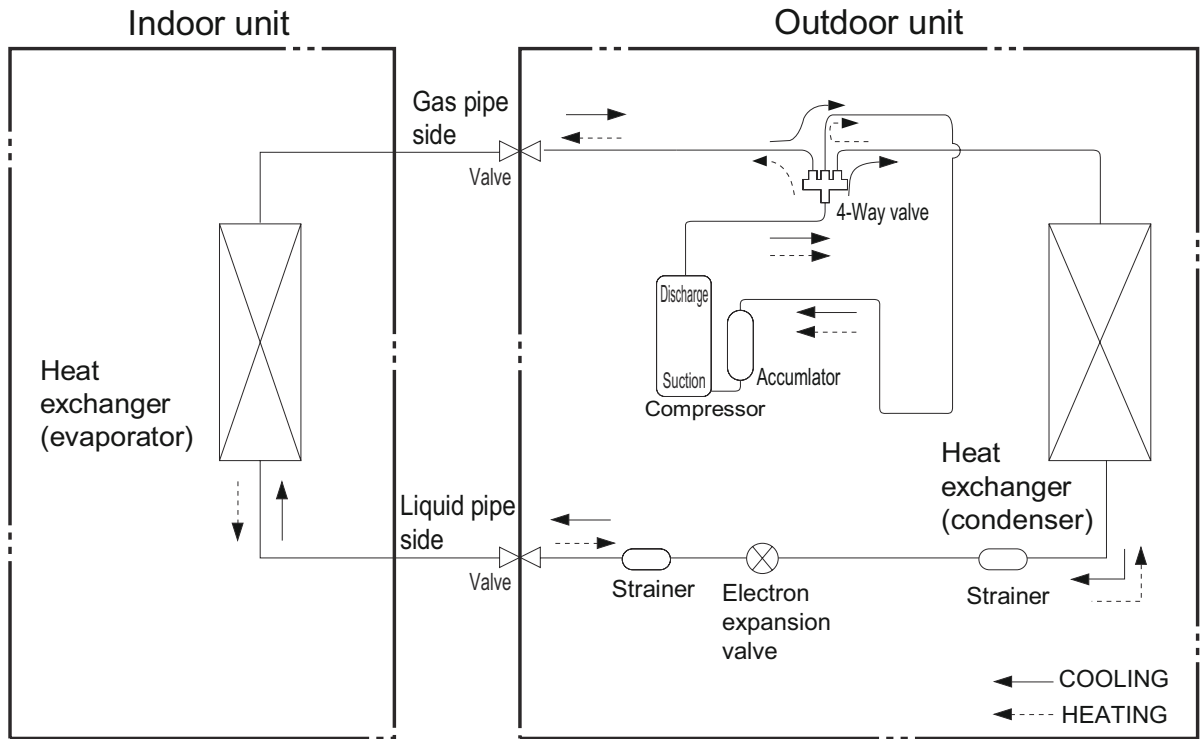
4. Refrigerant System Diagram

09/12/18K:



Connection pipe specification:
Liquid pipe:1/4"
Gas pipe:3/8"(09/12K)
Gas pipe:1/2"(18K)

24K:



Connection pipe specification:
Liquid pipe:1/4"
Gas pipe:5/8"(24K)

5. Electrical Part

5.1 Wiring Diagram

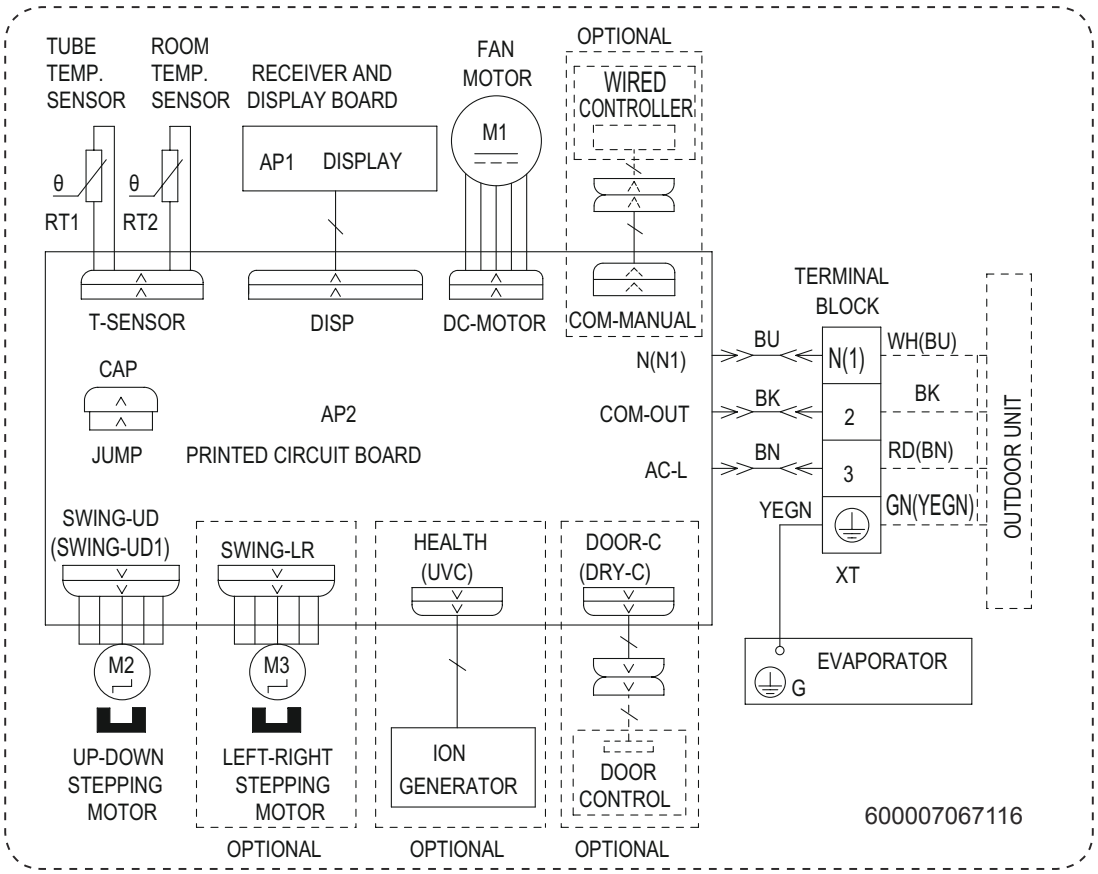
●Instruction

Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Name
WH	White	GN	Green	CAP	Jumper cap
YE	Yellow	BN	Brown	COMP	Compressor
RD	Red	BU	Blue	⏚	Grounding wire
YEGN	Yellow/Green	BK	Black	/	/
VT	Violet	OG	Orange	/	/

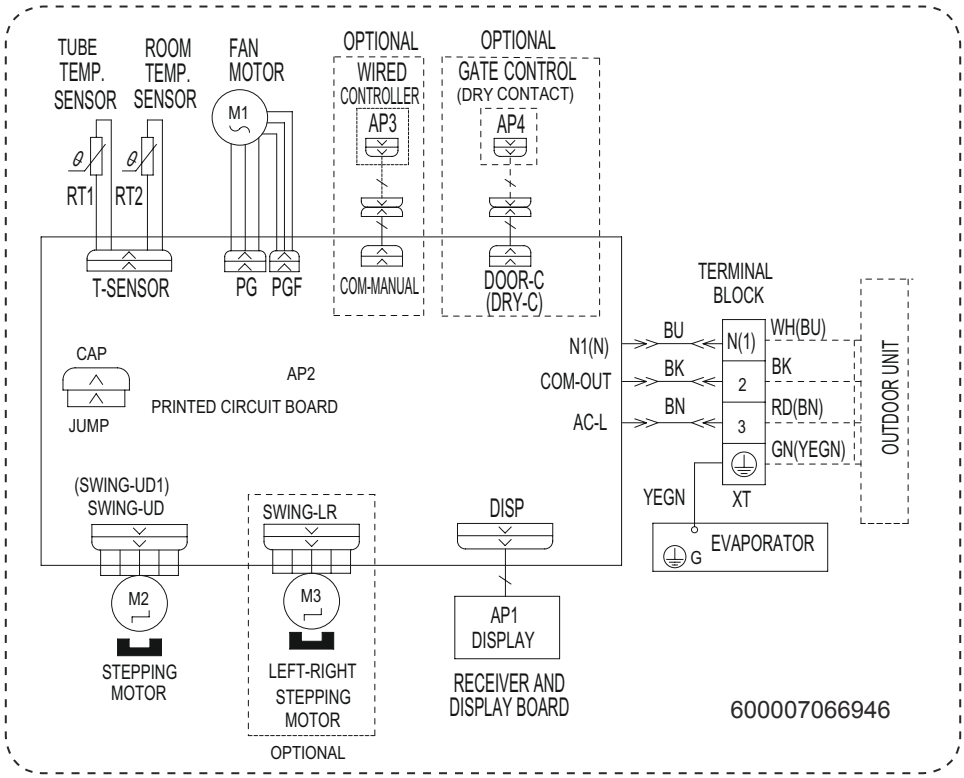
Note: Jumper cap is used to determine fan speed and the swing angle of horizontal louver for this model.

● Indoor Unit

TW12HXCA5AI TW12HXCA5DI TW18HXCA5DI TW24HXCA5DI

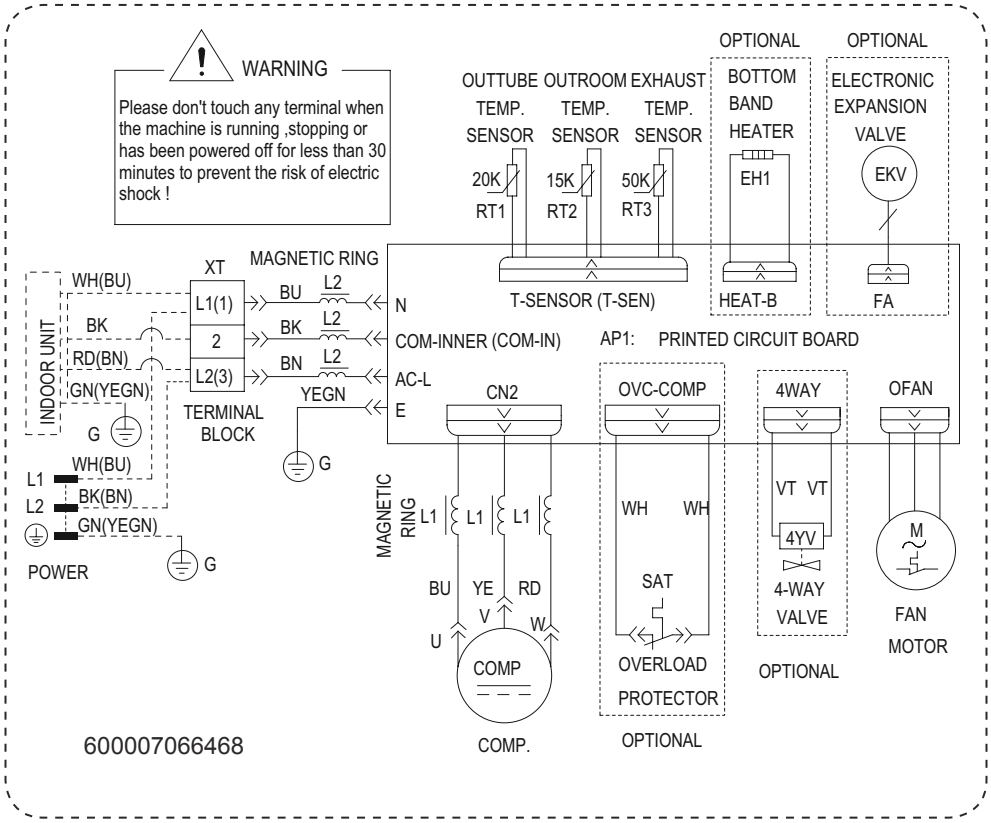


TW09HXCA5AI TW09HXCA5AI TW09CXCA5DI

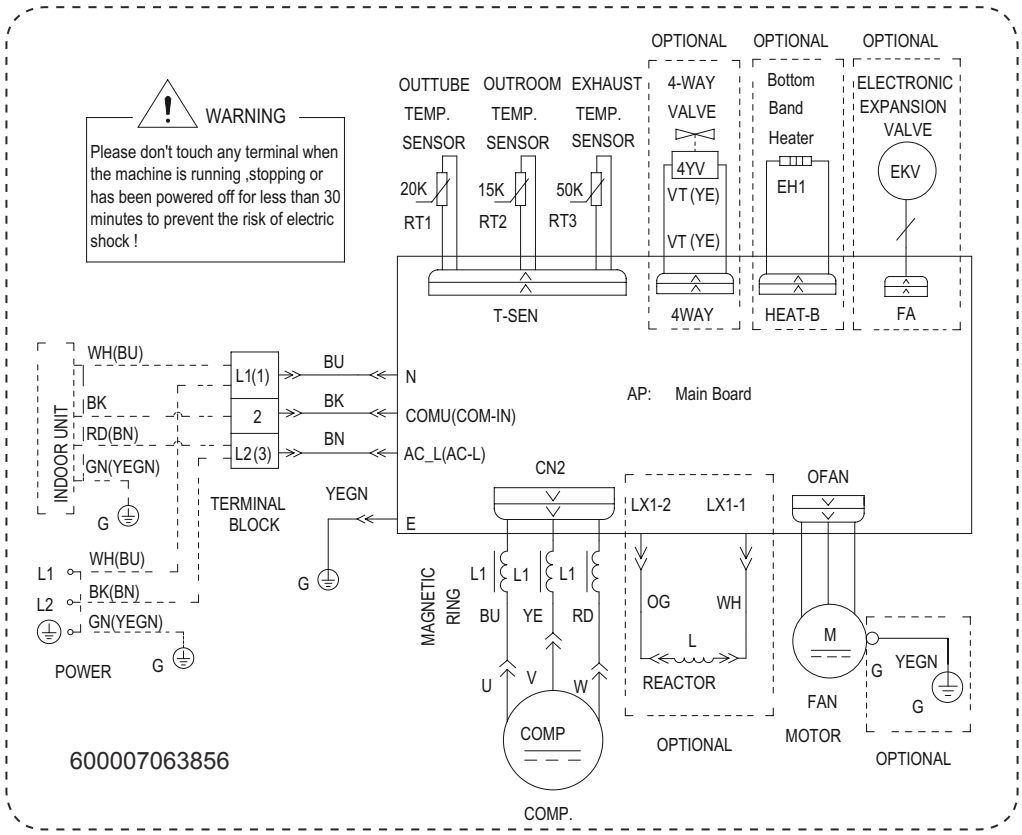


● Outdoor Unit

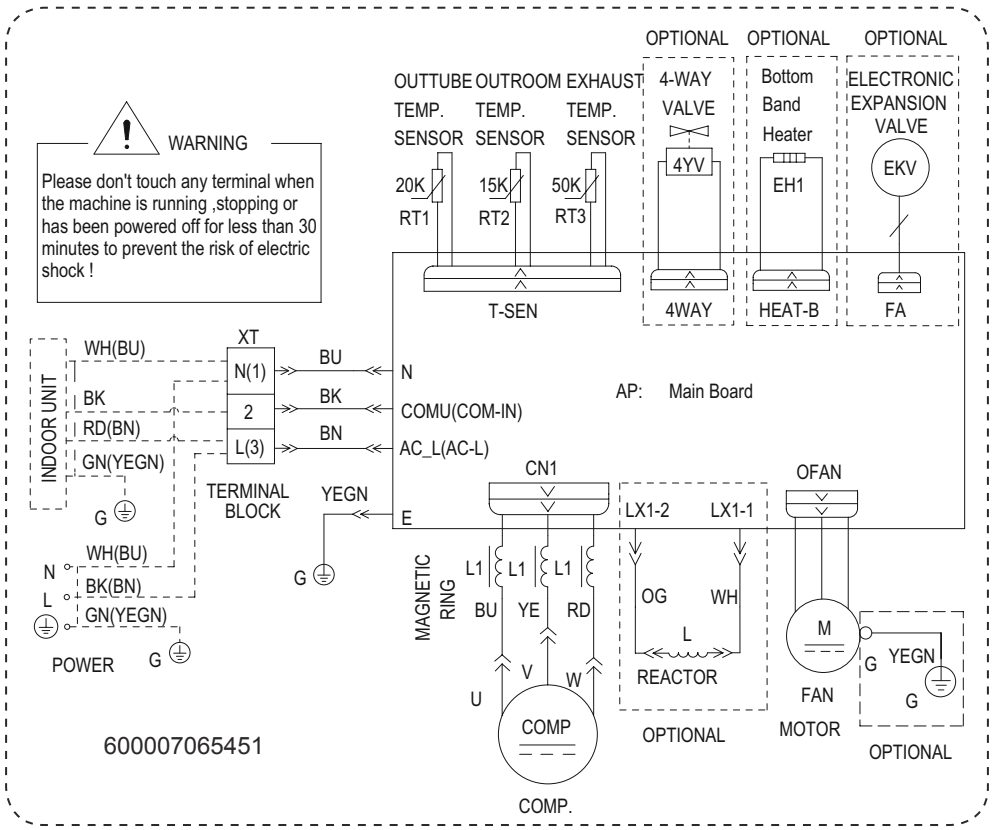
TW24HXCA5DO



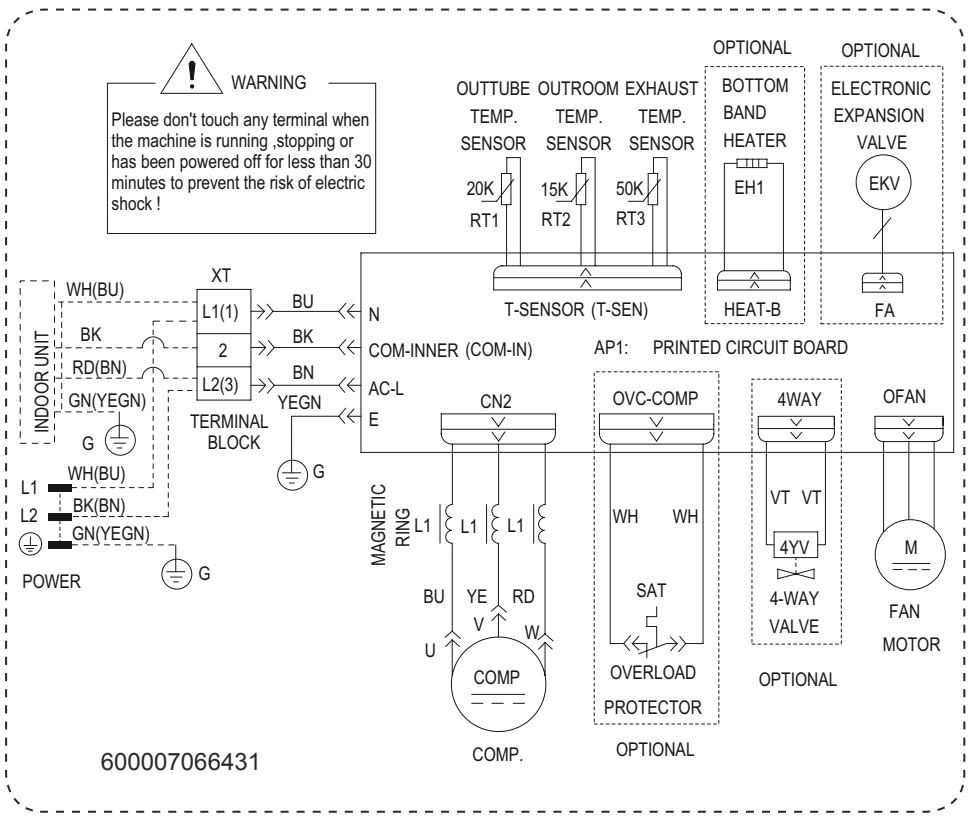
TW09HXCA5DO TW09CXCA5DO TW12HXCA5DO



TW09HXCA5AO TW12HXCA5AO



TW18HXCA5DO

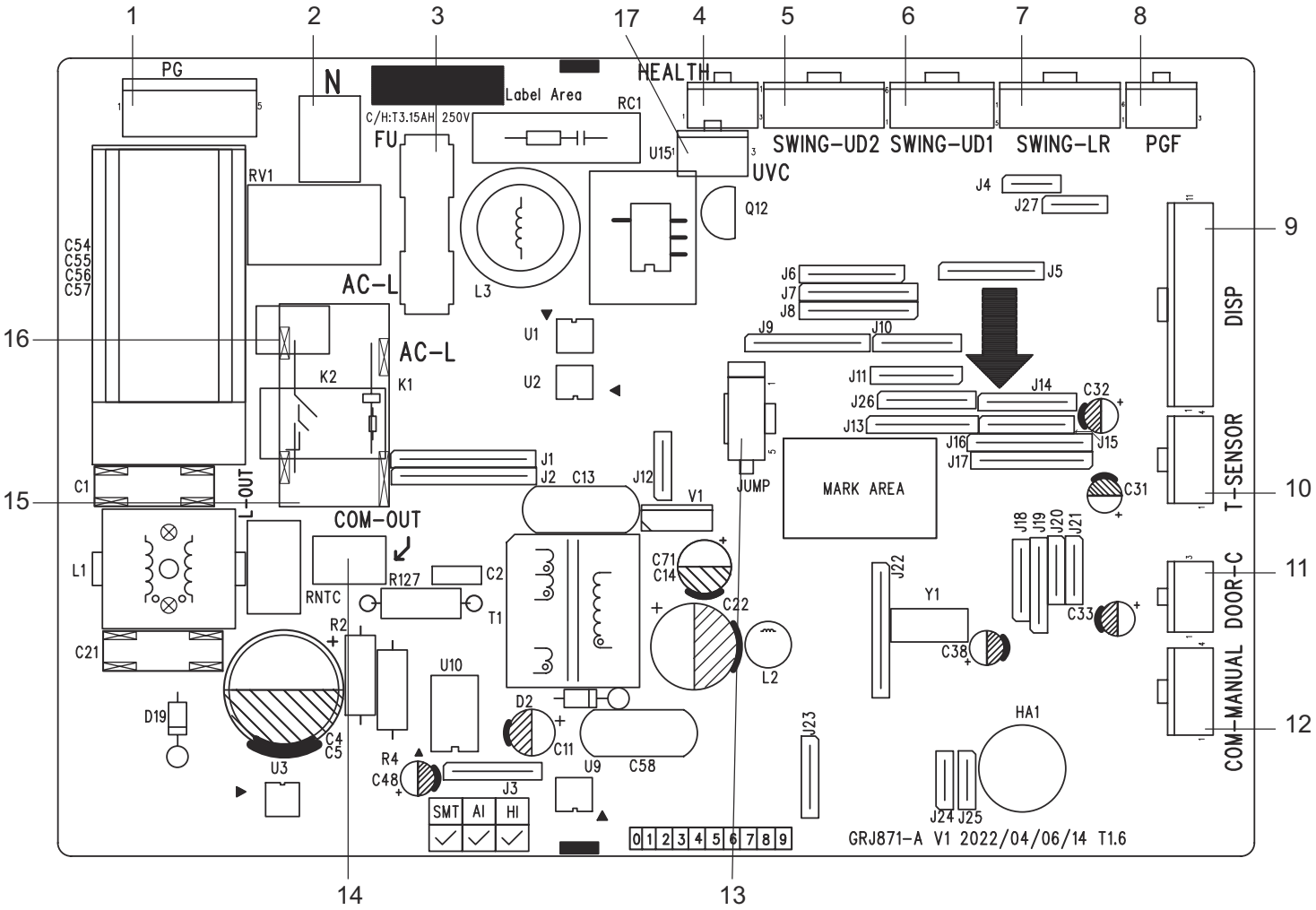


These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

5.2 PCB Printed Diagram

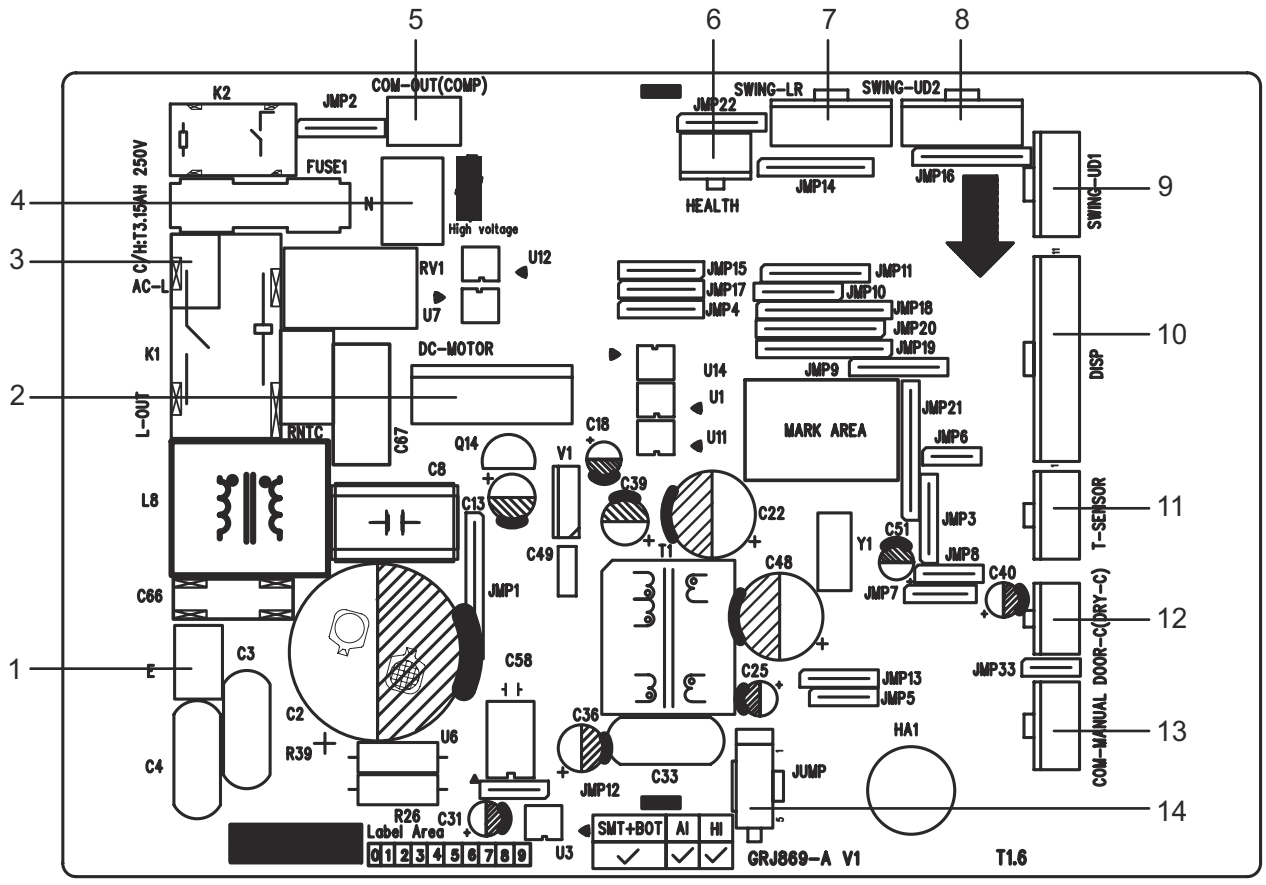
Indoor Unit

TW09HXCA5AI TW09HXCA5DI TW09CXCA5DI



No.	Name
1	Interface of fan
2	Interface of neutral wire
3	Fuse
4	Interface of health function(only for the mode with this function)
5	Up & down 2 swing interface
6	Up&down 1 swing interface
7	Left & right swing interface(only for the mode with this function)
8	Interface of PG feedback
9	Display board

No.	Name
10	Needle stand for temperature sensor
11	Interface of gate-control (only for the model with thisfunction)
12	Wired controller (only for the mode with this function)
13	Jump
14	Communication interface
15	Terminal of live wire used for supplying power for outdoor unit
16	Live wire terminal
17	Interface of ultraviolet clean

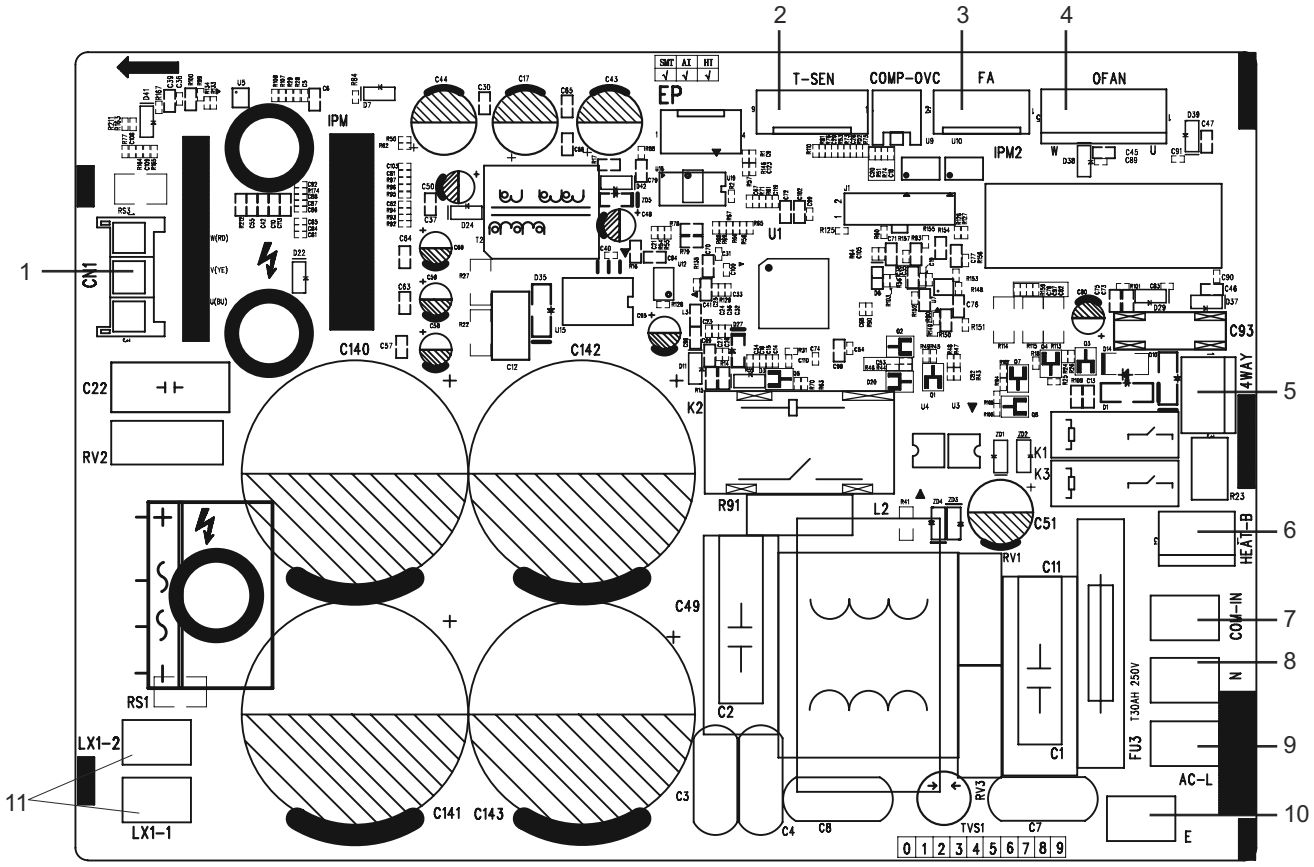


No.	Name
1	Grounding wire
2	DC fan interface
3	Live wire
4	Neutral wire
5	Communication wire
6	Interface of cold plasma
7	Left & right swing interface

No.	Name
8	Up & down swing interface 2
9	Up & down swing interface 1
10	Display interface
11	Interface of temperature sensor
12	Interface of gate control
13	Wired controller
14	Jumper cap

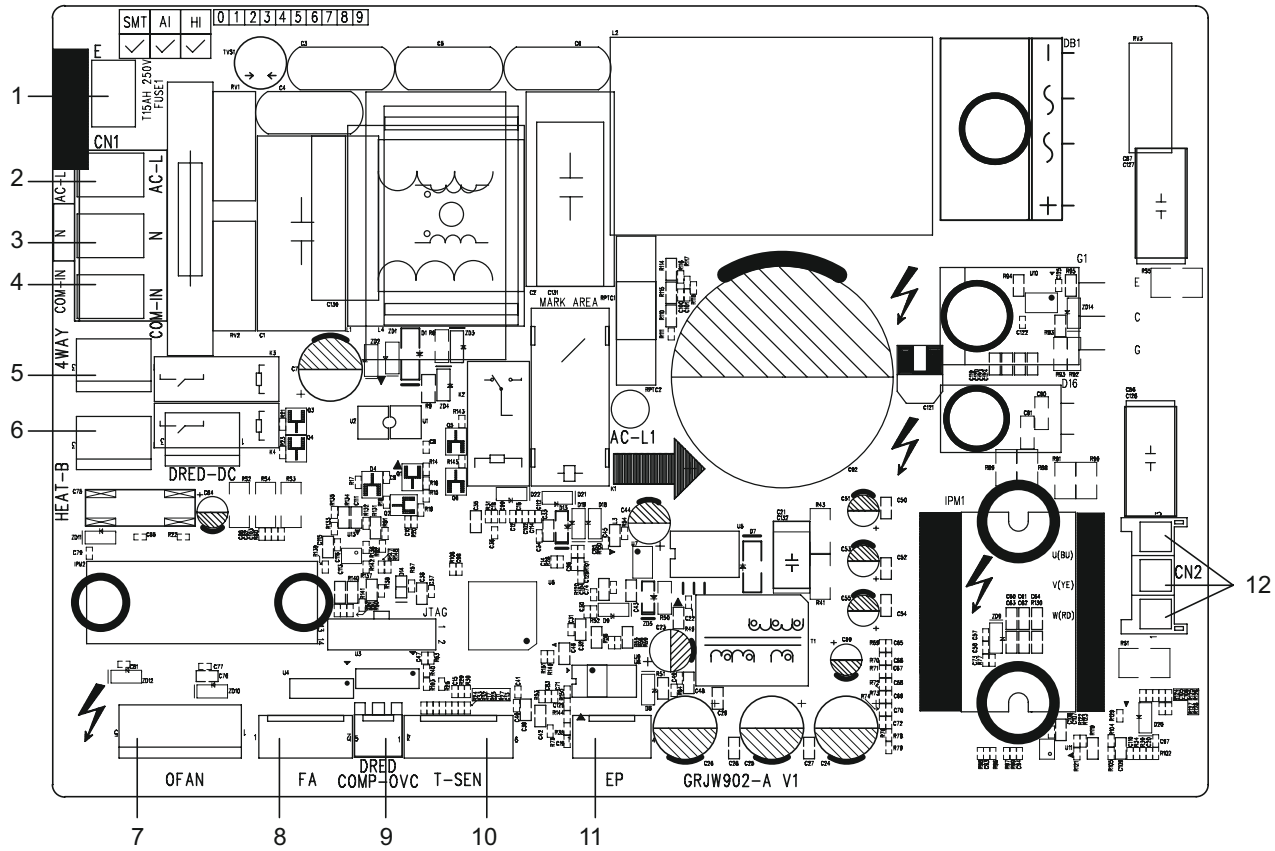
Outdoor Unit

TW09HXCA5AO TW12HXCA5AO

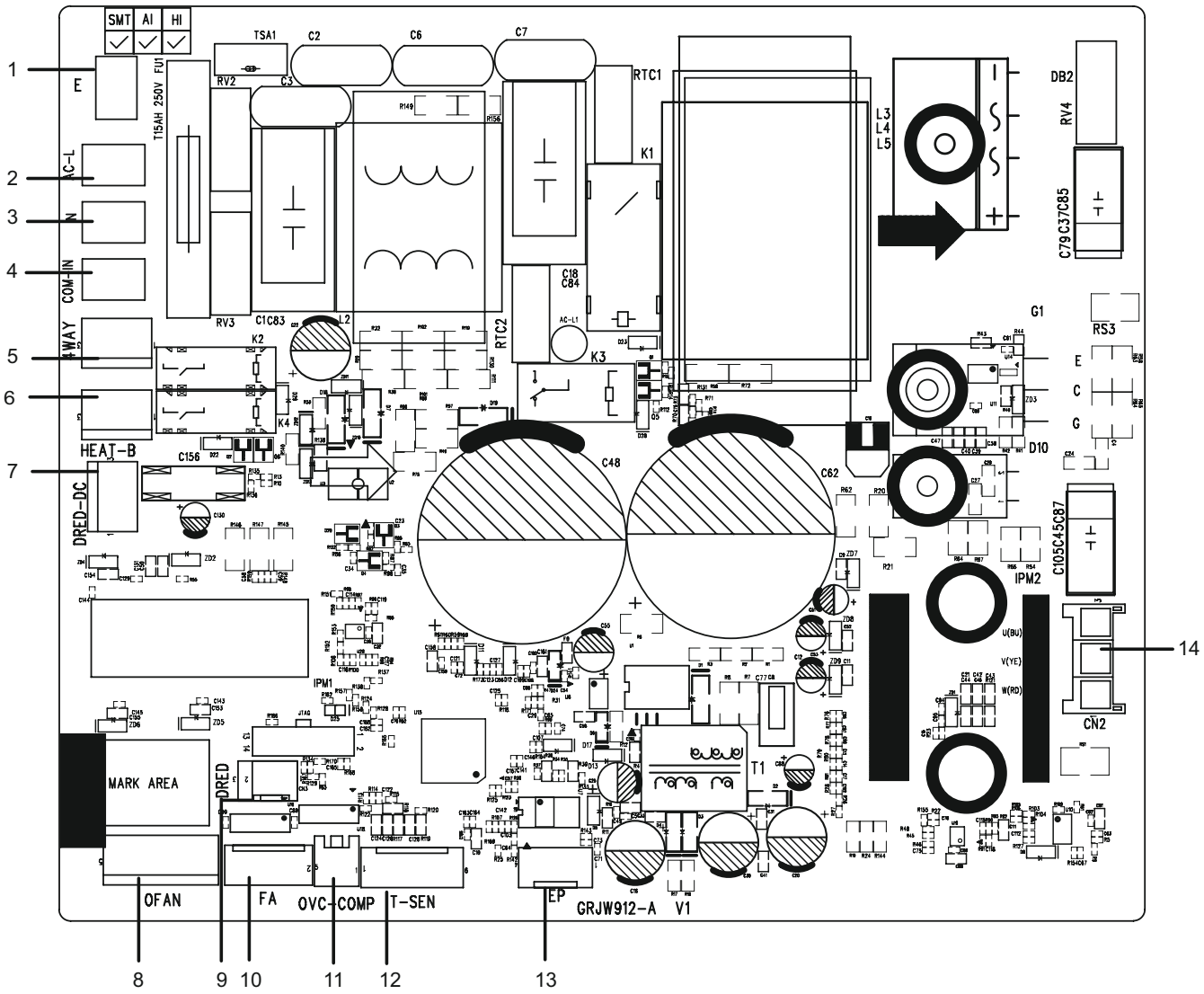


No.	Name
1	Three-phase terminal of compressor
2	Temperature sensor
3	Electronic expansion valve
4	Outdoor fan
5	4-way valve
6	Electric heating of chasssis

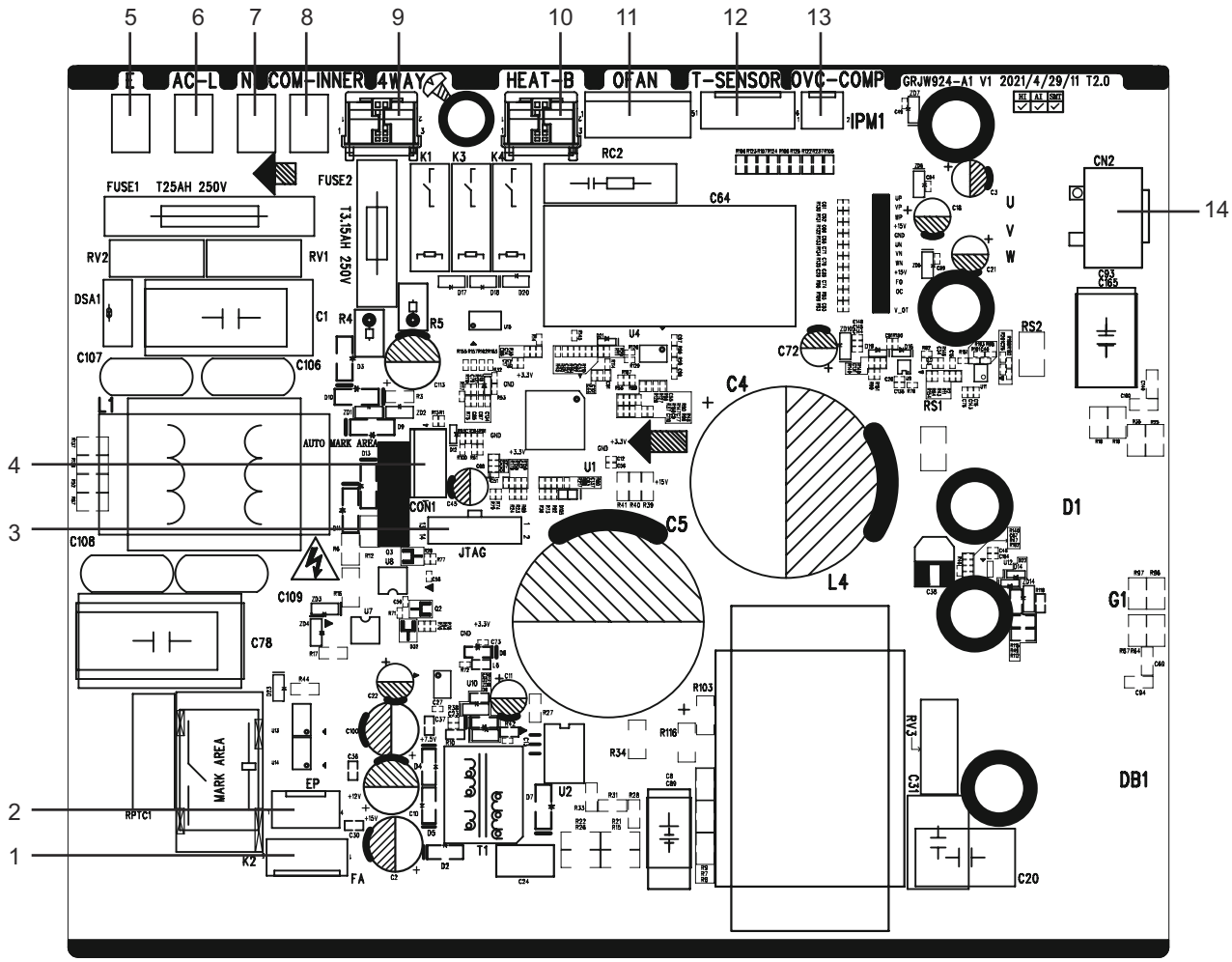
No.	Name
7	Terminal of communication wire
8	Neutral wire
9	Live wire
10	Earthing wire
11	Needle stand of Connect reactor



No.	Name	No.	Name
1	Earthing wire terminal	7	Fan motor terminal
2	Live wire terminal	8	Electron expansion valve terminal
3	Neutral wire terminal	9	Compressor overload terminal
4	Communication terminal	10	Temperature sensor terminal
5	4-way valve terminal	11	E store terminal
6	Electric heating terminal of chassis	12	Compressor terminal



No.	Name	No.	Name
1	Earthing wire	8	Outdoor fan
2	Live wire	9	DRED(Reserved)
3	Neutral wire	10	Electronic expansion valve
4	Communication wire	11	Compressor Overload
5	4-way valve	12	Temperature sensor
6	Electric heating of chasssis	13	EE Flash drives
7	DRED-DC(Reserved)	14	Compressor



No.	Name	No.	Name
1	Electronic expansion valve	8	Communication wire
2	E disk	9	4-way valve
3	Program debug interface	10	Electric heating of chasssis
4	Interface monitoring	11	AC fan
5	Earthing wire	12	Temperature sensor
6	Live wire	13	Overload of compressor
7	Neutral wire	14	Compressor terminal

6. Function and Control

6.1 Remote Controller Introduction

Buttons on remote controller for YAP1F7F(WiFi)



Introduction for icons on display screen

		I feel
	FAN AUTO	Set fan speed
		Turbo mode
		Send signal
Operation mode		Auto mode
		Cool mode
		Dry mode
		Fan mode
		Heat mode
		Sleep mode
		8℃ heating function
		Power limiting operation
		Health mode
		Scavenging function
		X-FAN function
Temp. display type		Set temp.
		Indoor ambient temp.
		Outdoor ambient temp.
		Clock
	88	Set temperature
	WiFi	WiFi function
	88:88	Set time
	ONOFF	TIMER ON / TIMER OFF
		Left & right swing
		Up & down swing
		Child lock
		Quiet

NOTE:

● This is a general use remote controller. It could be used for the air conditioner with multifunction. For the functions which the model doesn't have, if press the corresponding button on the remote controller, the unit will keep the original running status.

● After putting through the power, the air conditioner will give out a sound. Power indicator " ⏻ " is ON. After that, you can operate the air conditioner by using remote controller.

● Under on status, pressing the button on the remote controller, the signal icon " " on the display of remote controller will blink once and the air conditioner will give out a "di" sound, which means the signa has been sent to the air conditioner.

● As for the models with functions of WiFi or wired controller, the indoor unit must has been controlled by standard remote controller under auto mode first, and then the function of adjustable temperature under auto mode can be realized by APP or the wired controller.

● This remote controller can adjust the temperature under auto mode. When matching with the unit which is without the function of adjustable temperature under auto mode, the set temperature under auto mode may be invalid, or the displayed set temperature on the unit is not same as that on the remote controller under auto mode.

1. ON/OFF button

Press this button to turn on the unit. Press this button again to turn off the unit.

2. MODE button

Press this button to select your required operation mode.

AUTO → COOL → DRY → FAN → HEAT

● When selecting auto mode, air conditioner will operate automatically according to ex-factory setting. Press "FAN" button can adjust fan speed. Press " " / " " button can adjust fan

blowing angle.

● After selecting cool mode, air conditioner will operate under cool mode. Press "△" or "▽" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press " " / " " button to adjust fan blowing angle.

● When selecting dry mode, the air conditioner operates at low speed under dry mode. Under dry mode, fan speed can' t be adjusted. Press " " / " " button to adjust fan blowing angle.

● When selecting fan mode, the air conditioner will only blow fan, no cooling and no heating. All indicators are OFF. Press "FAN" button to adjust fan speed. Press " " / " " button to adjust fan blowing angle.

● When selecting heating mode, the air conditioner operates under heat mode. Press "△" or "▽" button to adjust set temperature. Press "FAN" button to adjust fan speed. Press " " / " " button to adjust fan blowing angle. (Cooling only unit won't receive heating mode signal. If setting heat mode with remote controller, press ON/OFF button can't start up the unit).

NOTE:

● For preventing cold air, after starting up heating mode, indoor unit will delay 1~5 minutes to blow air (actual delay time is depend on indoor ambient temperature).

● Set temperature range from remote controller: 61~86°C (61~86°F);

● Under auto mode, temperature can be displayed; Under auto mode, set temperature can be adjusted. This mode indicator is not available for some models.

3. FAN button

This button is used for setting Fan Speed in the sequence that goes from AUTO, , , , , , to , then back to Auto.

NOTE:

● Under AUTO speed, air conditioner will select proper fan speed automatically according to factory default setting.

It's low fan speed under dry mode.

● X-FAN function: Holding fan speed button for 2s in cool or dry mode, the icon " " is displayed and the indoor fan will continue operation for a few minutes in order to dry the indoor unit even though you have turned off the unit. After energization, X-FAN OFF is defaulted. X-FAN is not available in auto, fan or heat mode.

● This function indicates that moisture on evaporator of indoor unit will be blowed after the unit is stopped to avoid mould.

● Having set X-FAN function on: After turning off the unit by pressing ON/OFF button, indoor fan will continue running for a few minutes at low speed. In this period, hold fan speed button for 2s to stop indoor fan directly.

Having set X-FAN function off: After turning off the unit by pressing ON/OFF button, the complete unit will be off directly.

4. TURBO button

Under COOL or HEAT mode, press this button to turn to quick COOL or quick HEAT mode. " " icon is displayed on remote controller. Press this button again to exit turbo function and " " icon will disappear. If start this function, the unit will run at super-high fan speed to cool or heat quickly so that the ambient temperature approaches the preset temperature as soon as possible.

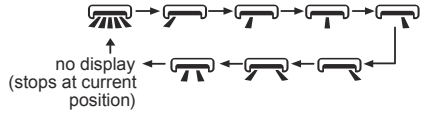
5. △ / ▽ button

● Press "△" or "▽" button once increase or decrease set temperature 1°C (°F). Holding "△" or "▽" button, 2s later, set temperature on remote controller will change quickly. On releasing button after setting is finished, temperature indicator on indoor unit will change accordingly.

● When setting T-ON, T-OFF or CLOCK, press "△" or "▽" button to adjust time. (Refer to CLOCK, T-ON, T-OFF buttons)

6. button

Press this button can select left & right swing angle. Fan blow angle can be selected circularly as below:



NOTE:

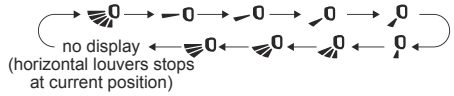
● Press this button continuously more than 2s, the main unit will swing back and forth from left to right, and then loosen the button, the unit will stop swinging and present position of guide louver will be kept immediately.

● Under left and right swing mode, when the status is switched from off to , if press this button again 2s later, status will switch to off status directly; if press this button again within 2s, the change of swing status will also depend on the circulation sequence stated above.

● The function is only available for some models.

7. button

Press this button can select up & down swing angle. Fan blow angle can be selected circularly as below:



● When selecting " ", air conditioner is blowing fan automatically. Horizontal louver will automatically swing up & down at maximum angle.

● When selecting " , , , , ", air conditioner is blowing fan at fixed position. Horizontal louver will stop at the fixed position.

● When selecting " , , ", air conditioner is blowing fan at

fixed angle.

● Hold " 0 " button above 2s to set your required swing angle. When reaching your required angle, release the button.

NOTE:

● " 0 , 0 , 0 " may not be available. When air conditioner receives this signal, the air conditioner will blow fan automatically.

● Press this button continuously more than 2s, the main unit will swing back and forth from up to down, and then loosen the button, the unit will stop swinging and present position of guide louver will be kept immediately.

● Under swing up and down mode, when the status is switched from off to 0 , if press this button again 2s later, 0 status will switch to off status directly; if press this button again within 2s, the change of swing status will also depend on the circulation sequence stated above.

8. T-ON / T-OFF button

● T-ON button

"T-ON" button can set the time for timer on. After pressing this button, " ◷ " icon disappears and the word "ON" on remote controller blinks. Press "△" or "▽" button to adjust T-ON setting. After each pressing "△" or "▽" button, T-ON setting will increase or decrease 1min. Hold "△" or "▽" button, 2s later, the time will change quickly until reaching your required time. Press "T-ON" to confirm it. The word "ON" will stop blinking." ◷ " icon resumes displaying. Cancel T-ON: Under the condition that T-ON is started up, press "T-ON" button to cancel it.

● T-OFF button

"T-OFF" button can set the time for timer off. After pressing this button, " ◷ " icon disappears and the word "OFF" on remote controller blinks. Press "△" or "▽" button to adjust T-OFF setting. After each pressing "△" or "▽" button, T-OFF setting will increase or decrease 1min. Hold "△" or "▽" button, 2s later, the time will change quickly until reaching your required time. Press "T-OFF" word "OFF" will stop blinking. " ◷ " icon resumes displaying. Cancel T-OFF: Under the condition that T-OFF is started up, press "T-OFF" button to cancel it.

NOTE:

● Under on and off status, you can set T-OFF or T-ON simultaneously.

● Before setting T-ON or T-OFF, please adjust the clock time.

● After starting up T-ON or T-OFF, set the constant circulating valid.

● After that, air conditioner will be turned on or turned off according to setting time. ON/OFF button has no effect on setting. If you don't need this function, please use remote controller to cancel it.

9. I FEEL button

Press this button to start I FEEL function and " " will be displayed on the remote controller. After this function is set, the remote controller will send the detected ambient temperature to the controller and the unit will automatically adjust the indoor temperature according to the detected temperature. Press this button again to cancel I FEEL function and " " will disappear.

● Please put the remote controller near user when this function is set. Do not put the remote contro ller near the object of high temperature or low temperature in order to avoid detecting inaccurate amb ient temperature. When I FEEL function is turned on, the remote controller should be put within the area where indoor unit can receive the signal sent by the remote controller.

10. CLOCK button

Press this button to set clock time. " ◷ " icon on remote controller will blink. Press "△" or " ▽ " button within 5s to set clock time. Each pressing of "△" or " ▽ " button, clock time will increase or decrease 1 minute. If hold "△" or " ▽ " button, 2s later, time will change quickly. Release this button when reaching your required time. Press "CLOCK" button to confirm the time. " ◷ " icon stops blinking.

NOTE:

● Clock time adopts 24-hour mode.

● The interval between two operations can't exceed 5s. Otherwise, remote controller will quit setting status. Operation for T-ON/T-OFF is the same.

11. SLEEP button

● Press this button, can select Sleep 1 (1), Sleep 2 (2), Sleep 3 (3) and cancel the Sleep, circulate between these, after electrified, Sleep Cancel is defaulted.

● Sleep 1 is Sleep mode 1, in Cool modes; sleep status after run for one hour, the main unit setting temperature will increase 1 , two hours, setting temperature increased 2°C, then the unit will run at this setting temperature; In Heat mode: sleep status after run for one hour, the setting temperature will decrease 1 , two hours, setting temperature will decrease 2 , then the unit will run at this setting temperature.

● Sleep 2 is sleep mode 2, that is air conditioner will run according to the presetting a group of sleep temperature curve.

● Sleep 3-the sleep curve setting under Sleep mode by DIY;

(1) Under Sleep 3 mode, press "Turbo" button for a long time, remote controller enters into user individuation sleep setting status, at this time, the time of remote controller will display "1hour", the setting temperature "88" will display the corresponding temperature of last setting sleep curve and blink (The first entering will display according to the initial curve setting value of original factory);

(2) Adjust "+" and "-" button, could change the corresponding setting temperature, after adjusted, press "Turbo" button for confirmation;

(3) At this time, 1hour will be automatically increased at the timer position on the remote control, (that are "2hours" or "3hours" or "8hours"), the place of setting temperature "88" will display the corresponding temperature of last setting sleep
curve and blink;
(4) Repeat the above step (2)~(3) operation, until 8 hours temperature setting finished, sleep,curve setting finished, at this time, the remote controller will resume the original timer display; temperature display will resume to original setting temperature.

● Sleep3- the sleep curve setting under Sleep mode by DIY could be inquired:

The user could accord to sleep curve setting method to inquire the presetting sleep curve, enter into user individuation sleep setting status, but do not change the temperature, press "Turbo" button directly for confirmation. Note: In the above presetting or enquiry procedure, if continuously within 10s, there is no button pressed, the sleep curve setting within 10s, there is no button pressed, the sleep curve setting status will be automatically quit and resume to display the original displaying. In the presetting or enquiry procedure, press "ON/OFF" button, "Mode" button, "Sleep" button, the sleep curve setting or enquiry status will quit similarly.

12. WiFi button

Press " WiFi " button to turn on WiFi function, "WiFi " icon will be displayed on the remote controller; Hold " WiFi " button for 5s to turn off WiFi function and " WiFi " icon will disappear.

Under off status, press "MODE" and " WiFi " buttons simultaneously for 1s, WiFi module will restore factory settings.

NOTE:

● This function is only available for some models.

13. / button

Press this button to achieve the on and off of health and scavenging functions in operation station. Press this button for the first time to start scavenging function; LCD displays " ". Press the button for the second time to start health and scavenging functions simultaneously; LCD displays " " and " ". Press this button for the third time to quit health and scavenging functions simultaneously. Press the button for the fourth time to start health function; LCD display " ". Press this button again to repeat the operation above.

NOTE:

● This function is applicable to partial of models.

14. LIGHT button

Press this button to turn on or turn off the display light on the indoor unit.

The display light is defaulted on after energization.

15. TEMP button

Press this button, you can see indoor set temperature, indoor ambient temperature on indoor unit's display. The setting on remote controller is selected circularly as below:



Function introduction for combination buttons

1. Energy-saving function

Under cooling mode, press "TEMP" and "CLOCK" buttons simultaneously to start up or turn off energysaving function. When energy-saving function is started up, "SE" will be shown on remote controller, and air conditioner will adjust the set temperature automatically according to ex-factorysetting to reach to the best energy-saving effect. Press "TEMP" and "CLOCK" buttons simultaneously again to exit energy-saving function.

NOTE:

● Under energy-saving function, fan speed is defaulted at auto speed and it can't be adjusted.

● Under energy-saving function, set temperature can't be adjusted. Press "TURBO" button and the remote controller won't send signal.

● Sleep function and energy-saving function can't operate at the same time. If energy-saving function has been set under cool mode, press sleep button will cancel energy-saving function. If sleep function has been set under cool mode, start up the energy-saving function will cancel sleep function.

2. 8°C heating function

Under heat mode, press "TEMP" and "CLOCK" buttons simultaneously to start up or turn off 8°C heating function. When this function is started up, " ⑧ " and "8°C" will be shown on remote controller, and the air conditioner keep the heating status at 8°C.

Press "TEMP" and "CLOCK" buttons simultaneously again to exit 8°C heating function.

NOTE:

● Under 8°C heating function, fan speed is defaulted at auto speed and it can't be adjusted.

● Under 8°C heating function, set temperature can't be adjusted. Press "TURBO" button and the remote controller won't send signal.

● Sleep function and 8°C heating function can't operate at the same time. If 8°C heating function has been set under heat mode, press sleep button will cancel 8°C heating function. If sleep function has been set under heat mode, start up the 8°C heating function will cancel sleep function.

● Under °F temperature display, the remote controller will display 46°F heating.

3. Child lock function

Press "△" and "▽" simultaneously to turn on or turn off child lock

function. When child lock function is on, " 🔒 " icon is displayed on remote controller. If you operate the remote controller, the " 🔒 " icon will blink three times without sending signal to the unit.

4. Temperature display switchover function

Under OFF status, press "▽" and "MODE" buttons simultaneously to switch temperature display between °C and °F.

5. Auto clean function

Under unit off status, hold "MODE" and "FAN" buttons simultaneously for 5s to turn on or turn off the auto clean function. When the auto clean function is turned on, indoor unit displays "CL" . During the auto clean process of evaporator, the unit will perform fast cooling or fast heating. There may be some noise, which is the sound of flowing liquid or thermal expansion or cold shrinkage. The air conditioner may blow cool or warm air, which is a normal phenomenon. During cleaning process, please make sure the room is well ventilated to avoid affecting the comfort.

NOTE:

● The auto clean function can only work under normal ambient temperature. If the room is dusty, clean it once a month; if not, clean it once every three months. After the auto clean function is turned on, you can leave the room. When auto clean is finished, the air conditioner will enter standby status.

● This function is only available for some models.

6. P function

Press "MODE" and "SLEEP" buttons simultaneously to start P function.

P function is for limiting power of the whole unit. Press this button, the remote controller will circularly display as the following:



● Maximum power limited under the P mode is lower than that of P mode.

● If you want to cancel the power limiting function, press the button P till the icon in remote controller is not displayed.

● When the remote controller is turned off, power limiting function is cancelled. If you want to activate the function, please repress this button.

● If the current power is lower than the maximum power of P mode, then the power will not be limited after entering into such mode.

● For the model with one outdoor unit and two indoor units, if any one of indoor units enters into power limiting function, the outdoor unit will enter into the set limiting power mode of indoor unit; when two indoor units enter into power limiting mode, then the power of outdoor unit will be limited according to the lower power of the two indoor units.

NOTE:

● This function is only available for some models.

Replacement of batteries in remote controller

1. Lift the cover along the direction of arrow (as shown in Fig 1 ①).

2. Take out the original batteries (as shown in Fig 1 ②).

3. Place two 7# (AAA 1.5V) dry batteries, and make sure the position of " + " polar and " - " polar is correct (as shown in Fig 2 ③).

4. Reinstall the cover (as shown in Fig 2 ④).

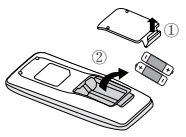


Fig.1

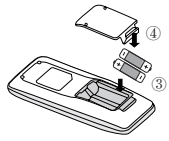


Fig.2

NOTICE:

● During operation, point the remote control signal sender at the receiving window on indoor unit.

● The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.

● Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.

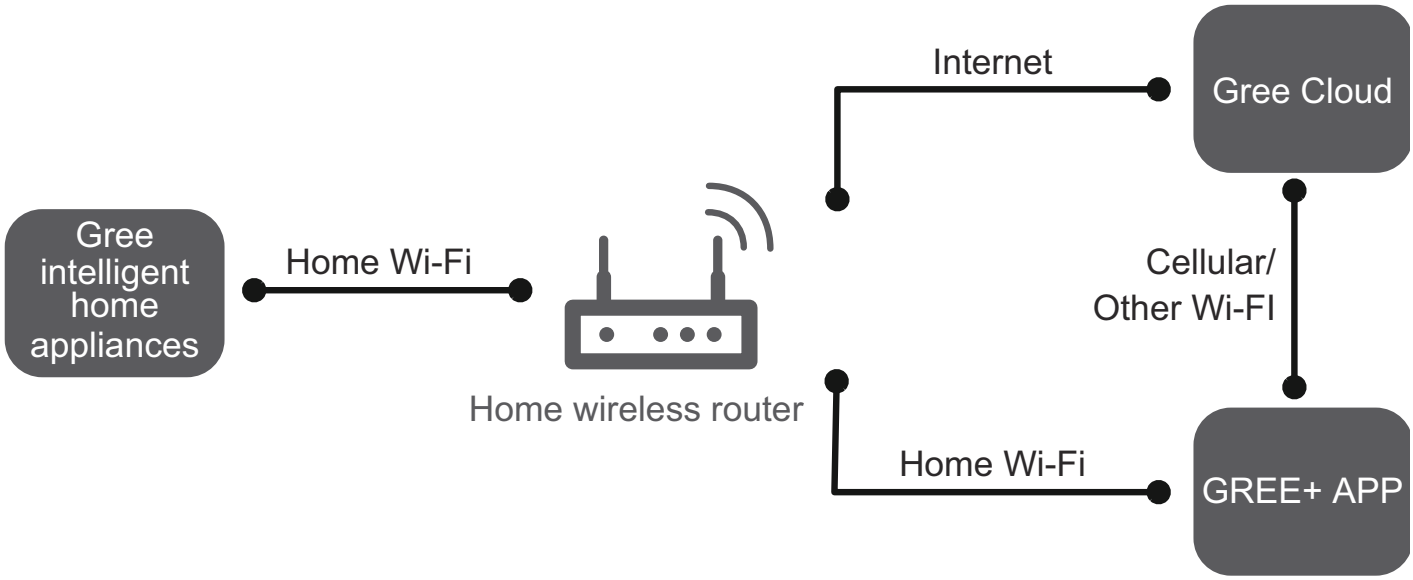
● Replace new batteries of the same model when replacement is required.

● When you don't use remote controller for a long time, please take out the batteries.

● If the display on remote controller is fuzzy or there's no display, please replace batteries.

6.2 GREE+ App Operation Manual

Control Flow Chart



Operating Systems

Requirement for User's smart phone:

iOS system
Support iOS7.0 and above version

Android system
Support Android 4.4 and above version

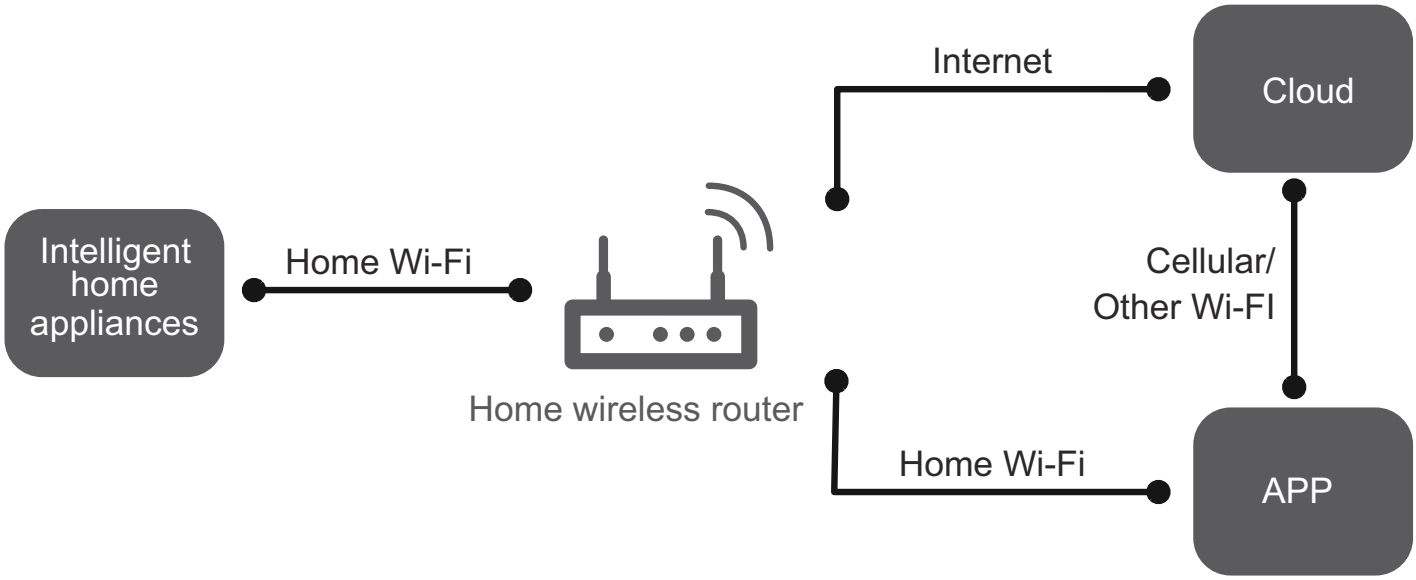
Download and installation

GREE+ App Download Linkage

Scan the QR code or search "GREE+" in the application market to download and install it. When "GREE+" App is installed, register the account and add the device to achieve long-distance control and LAN control of Gree smart home appliances.
For more information, please refer to "Help" in App.

6.3 Ewpe Smart App Operation Manual

Control Flow Chart



Operating Systems

Requirement for User's smart phone:

iOS system
Support iOS7.0 and above version

Android system
Support Android 4.4 and above version

Download and installation

App Download Linkage

Scan the QR code or search "Ewpe Smart" in the application market to download and install it. When "Ewpe Smart" App is installed, register the account and add the device to achieve long-distance control and LAN control of smart home appliances.
For more information, please refer to "Help" in App.

6.4 Brief Description of Modes and Functions

1. Basic function of system

(1) Cooling mode

(1) Under this mode, fan and swing operates at setting status. Temperature setting range is 60.8~86.0°F.

(2) During malfunction of outdoor unit or the unit is stopped because of protection, indoor unit keeps original operation status.

(2) Drying mode

(1) Under this mode, fan operates at low speed and swing operates at setting status. Temperature setting range is 60.8~86.0°F.

(2) During malfunction of outdoor unit or the unit is stopped because of protection, indoor unit keeps original operation status.

(3) Protection status is same as that under cooling mode.

(4) Sleep function is not available for drying mode.

(3) Heating mode

(1) Under this mode, Temperature setting range is 60.8~86.0°F.

(2) Working condition and process for heating mode:

When turn on the unit under heating mode, indoor unit enters into cold air prevention status. When the unit is stopped or at OFF status, and indoor unit has been started up just now, the unit enters into residual heat-blowing status.

(4) Working method for AUTO mode:

1. Working condition and process for AUTO mode:

a. Under auto mode set temperature can be adjusted. The unit switch mode automatically according to ambient temperature.

2. Protection function

a. During cooling operation, protection function is same as that under cooling mode.

b. During heating operation, protection function is same as that under heating mode.

3. Display: Set temperature is the set value under each condition. Ambient temperature is (Tamb.-Tcompensation) for heat pump unit and Tamb. for cooling only unit.

4. If there's I feel function, Tcompensation is 0. Others are same as above.

(5) Fan mode

Under this mode, indoor fan operates at set fan speed. Compressor, outdoor fan, 4-way valve and electric heating tube stop operation. Indoor fan can select to operate at high, medium, low or auto fan speed. Temperature setting range is 60.8~86.0°F.

2. Other control

(1) Buzzer

Upon energization or availably operating the unit or remote controller, the buzzer will give out a beep.

(2) Auto fan

Heating mode: During auto heating mode or normal heating ode, auto fan speed will adjust the fan speed automatically according to ambient temperature and set temperature.

(3) Sleep function

After setting sleep function for a period of time, system will adjust set temperature automatically.

(4) Timer function

General timer and clock timer functions are compatible by equipping remote controller with different functions.

(5) Memory function

Memorize compensation temperature, off-peak energization value.Memory content: mode, up&down swing, light, set temperature, set fan speed, general timer (clock timer can't be memorized). After power recovery, the unit will be turned on automatically according to memory content.

(6) Health function

During operation of indoor fan, set health function by remote controller. Turn off the unit will also turn off health function.

Turn on the unit by pressing auto button, and the health is defaulted ON.

(7) I feel control mode

After controller received I feel control signal and ambient temperature sent by remote controller, controller will work according to the ambient temperature sent by remote controller.

(8) Compulsory defrosting function

a. Start up compulsory defrosting function

Under ON status, set heating mode with remote controller and adjust the temperature to 60.8°F. Press "△,▽,△,▽,△,▽" button successively within 5s and the complete unit will enter into compulsory defrosting status. Meanwhile, heating indicator on indoor unit will ON 10s and OFF 0.5s successively. (Note: If complete unit has malfunction or stops operation due to protection, compulsory defrosting function can be started up after malfunction or protection is resumed.

b. Exit compulsory defrosting mode

After compulsory defrosting is started up, the complete unit will exit defrosting operation according to the actual defrosting result, and the complete unit will resume normal heating operation.

(9) Refrigerant recovery function:

a. Enter refrigerant recycling function

Within 5min after energizing (unit ON or OFF status is ok), continuously press LIGHT button for 3 times within 3s to enter refrigerant recycling mode; Fo is displayed and refrigerant recycling function is started. At this moment, the maintenance people closes liquid valve. After 5min, stick the thimble of

maintenance valve with a tool. If there is no refrigerant spraying out, close the gas valve immediately and then turn off the unit to remove the connection pipe.

b. Exit refrigerant recycling function

After entering refrigerant recycling mode, when receive any remote control signal or enter refrigerant recycling mode for 25min, the unit will exit refrigerant recycling mode automatically If the unit is in standby mode before refrigerant recycling, it will be still in standby mode after finishing refrigerant recycling; if the unit is in ON status before refrigerant recycling, it will still run in original operation mode.

(10) Ambient temperature display control mode

a. When user set the remote controller to display set temperature (corresponding remote control code: 01), current set temperature will be displayed.

b. Only when remote control signal is switched to indoor ambient temperature display status (corresponding remote control code: 10) from other display status (corresponding remote control code: 00, 01,11),controller will display indoor ambient temperature for 3s and then turn back to display set temperature.

Under this mode, indoor fan operates at set fan speed. Compressor, outdoor fan, 4-way valve and electric heating tube stop operation. Indoor fan can select to operate at high, medium, low or auto fan speed. Temperature setting range is 60.8~86.0°F.

(11) Off-peak energization function:

Adjust compressors minimum stop time. The original minimum stop time is 180s and then we change to:

The time interval between two start-ups of compressor can't be less than 180+T s(0≤T≤15). T is the variable of controller. Thats to say the minimum stop time of compressor is 180s~195s. Read-in T into memory chip when refurbish the memory chip each time. After power recovery, compressor can only be started up after 180+T s at least.

(12) SE control mode

The unit operates at SE status.

(13) X-fan mode

When X-fan function is turned on, after turn off the unit, indoor fan will still operate at low speed for 2min and then the complete unit will be turned off. When x-fan function is turned off, after turn off the unit, the complete unit will be turned off directly.

(14) 46.4ºF heating function

Under heating mode, you can set 46.4°F heating function by remote controller. The system will operate at 46.4°F set temperature.

(15) Turbo fan control function

Set turbo function under cooling or heating mode to enter into turbo fan speed. Press fan speed button to cancel turbo wind.

No turbo function under auto, dry or fan mode.

(16)Auto cleaning function(only available on some models)

The automatic cleaning function of the indoor heat exchanger can be dedusted and sterilized by the condensation, frosting, defrosting and high temperature stages of the evaporator.

1.Under the power off, press and hold the “Internal Clean” button for 3 seconds while holding down the “MODE” and “FAN” buttons for 5 seconds to turn on the Auto Clean function. After the function is turned on, the air conditioner displays “CL”.

2. The evaporator will be rapidly cooled or heated during the automatic cleaning process. There may be noise or even noise. The noise generated by the plastic parts due to thermal expansion and contraction is normal. During the cleaning and disinfection process, the room temperature may increase slightly, please keep the room well ventilated.

Tips:

The automatic cleaning function can only be started under normal environmental conditions. If the indoor environment is easy to dust, it is recommended to clean it once a month. If the indoor environment is not so dusty, it is recommended to clean it once every three months.

After turning on the automatic cleaning mode, the user can leave the room. When cleaning is complete, the unit will automatically enter standby mode.

Outdoor Units

1. Input Parameter Compensation and Calibration

(1) Check the ambient temperature compensation function Indoor ambient temperature compensation function.

a. In cooling mode, the indoor ambient temperature participating in computing control = ($T_{\text{indoor ambient temperature}} - \Delta T_{\text{cooling indoor ambient temperature compensation}}$)

b. In heating mode, the indoor ambient temperature participating in computing control= ($T_{\text{indoor ambient temperature}} - \Delta T_{\text{heating indoor ambient temperature compensation}}$)

(2) Check effective judgment controls of parameters

Effective judgment function of the outdoor exhaust temperature thermo-bulb When conditions a and b are satisfied, the outdoor exhaust temperature thermo-bulb is judged not to be connected into place, the mainboard of outer units will display failure of the outdoor exhaust temperature thermo-bulb (not connected into place), stop the machine for repairing, and resume the machine by remote controls of ON/OFF.

a. Judgment of exhaust detection temperature change:

After the compressor starts up and runs for 10 minutes, if the compressor frequency f ≥ 40Hz, and the rising value Texhaust ($T_{\text{exhaust (after start-up for 10 minutes)}} - T_{\text{exhaust (before start-up)}}$) <35.6ºF , the outdoor exhaust temperature thermo-bulb can be judged not to be connected into place (judging once when the power is on the first

time).

b. Comparative judgment of exhaust detection temperature and condenser detection temperature ($T_{pipe\ temperature} = T_{outdoor\ pipe\ temperature\ in\ cooling\ mode}$, $T_{pipe\ temperature} = T_{indoor\ pipe\ temperature\ in\ heating\ mode}$): After the compressor starts up and runs for 10 minutes, if the compressor frequency f ≥ 40Hz, and $T_{pipe\ temperature} \geq (T_{exhaust+37.4})$, the outdoor exhaust temperature thermobulb can be judged not to be connected into place (judging once when power is on the first time).

2. Basic Functions

(1) Cooling Mode

1. Conditions and processes of cooling operation:

(1) If the compressor is shut down, and $[T_{setup} - (T_{indoor\ ambient\ temperature} - \Delta T_{cooling\ indoor\ ambient\ temperature\ compensation})] \leq 32.9ºF$, start up the machine for cooling, the cooling operation will start;

(2) During operations of cooling, if $32ºF \leq [T_{setup} - (T_{indoor\ ambient\ temperature} - \Delta T_{cooling\ indoor\ ambient\ temperature\ compensation})] < 35.6ºF$, the cooling operation will be still running;

(3) During operations of cooling, if $35.6ºF \leq [T_{setup} - (T_{indoor\ ambient\ temperature} - \Delta T_{cooling\ indoor\ ambient\ temperature\ compensation})]$, the cooling operation will stop after reaching the temperature point.

2. Temperature setting range

(1) If $T_{outdoor\ ambient\ temperature} \geq [T_{low\text{-}temperature\ cooling\ temperature}]$, the temperature can be set at: 60.8~86ºF (Cooling at room temperature);

(2) If $T_{outdoor\ ambient\ temperature} < [T_{low\text{-}temperature\ cooling\ temperature}]$, the temperature can be set at: 77~86ºF (Cooling at low temperature), that is, the minimum setting temperature for outer units judgment is 77ºF .

(2) Dehumidifying Mode

1. Conditions and processes of dehumidifying operations: Same as the cooling mode;

2. The temperature setting range is: 60.8~86ºF;

(3) Air-supplying Mode

1. The compressor, outdoor fans and four-way valves are switched off;

2. The temperature setting range is: 60.8~86ºF.

(4) Heating Mode

1. Conditions and processes of heating operations: ($T_{indoor\ ambient\ temperature}$ is the actual detection temperature of indoor environment thermo-bulb, $T_{heating\ indoor\ ambient\ temperature\ compensation}$ is the indoor ambient temperature compensation during heating operations)

(1) If the compressor is shut down, and $[(T_{indoor\ ambient\ temperature} - \Delta T_{heating\ indoor\ ambient\ temperature\ compensation}) - T_{setup}] \leq 32.9ºF$, start the machine to enter into heating operations for heating;

(2) During operations of heating, if $32ºF \leq [(T_{indoor\ ambient\ temperature} - \Delta T_{heating\ indoor\ ambient\ temperature\ compensation}) - T_{setup}] < 35.6ºF$, the heating operation will be still running;

(3) During operations of heating, if $35.6ºF \leq [(T_{indoor\ ambient\ temperature} - \Delta T_{heating\ indoor\ ambient\ temperature\ compensation}) - T_{setup}]$, the heating operation will stop after reaching the temperature point.

2. The temperature setting range in this mode is: 60.8~86ºF .

3. Special Functions

Defrosting Control

① Conditions for starting defrosting

After the time for defrosting is judged to be satisfied, if the temperature for defrosting is satisfied after detections for continuous 3minutes, the defrosting operation will start.

② Conditions of finishing defrosting

The defrosting operation can exit when any of the conditions below is satisfied:

③ $T_{outdoor\ pipe\ temperature} \geq (T_{outdoor\ ambient\ temperature} - [T_{temperature\ 1\ of\ finishing\ defrosting}]$;

④ The continuous running time of defrosting reaches [tmax. defrosting time].

4. Control Logic

(1) Compressor Control

Start the compressor after starting cooling, heating, dehumidifying operations, and the outer fans start for 5s; When the machine is shutdown, in safety stops and when switching to air-supplying mode, the compressor will stop immediately. In all modes: once the compressor starts up, it will not be allowed to stop until having run for the [tmin. compressor running time] (Note: including cases of shutdown when the temperature point is reached; except the cases requiring stopping the compressor such as fault protection, remote shutdown, mode switching etc.); In all modes: once the compressor stops, it will be allowed be restart after 3-minute delay (Note: The indoor units have a function of power memory, the machine can be restarted after remote shutdown and powering up again without delay).

1. Cooling mode

Start the machine to enter into cooling operation for cooling, the compressor is switched on.

2. Dehumidifying mode

Same as the cooling mode.

3. Air-supplying mode

The compressor is switched off.

4. Heating mode

(1) Start the machine to enter into heating operation for heating, the compressor is switched on.

(2) Defrosting:

a. Defrosting starts: the compressor is shut down, and restarts it after 55-second delay.

b. Defrosting ends: the compressor stops, then starts it after 55-second delay.

(2) Outer Fans Control

Notes:

Only the outer fans run for at least 80s in each air flow speed can the air flow be switched;

After the outer fans run compulsively in high speed for 80s when the machine starts up, control the air flow according to the logic.

After remote shutdown, safety stops, and when the machine stops after reaching the temperature point, as well as after the compressor stops, extend 1 minute, the outer fans will stop (During the period in the 1 minute, the air flow of outer fans can be changed according to the outdoor ambient temperature changes);

When running with force, the outdoor fans shall run in the highest air flow.

(3) 4-way valve control

1. The 4-way valve control under the modes of Cooling, dehumidification and supplying air: closing;

2. The status of 4-way valve control under the heating mode: getting power;

(1) 4-way valve power control under heating mode

a. Starts the machine under heating mode, the 4-way valve will get power immediately.

(2) 4-way valve power turn-off control under heating mode

a. When you should turn off the power or switch to other mode under heating mode, the power of 4-way valve will be cut after 2 minutes of the compressor stopped.

b. When all kinds of protection stops, the power of 4-way valve will be cut after delaying 4 minutes.

(3) Defrosting control under heating mode:

a. Defrosting begins: The power of 4-way valve will be cut after 50s of entering into the defrosting
compressor.

b. Defrosting stops: The 4-way valve will get power after 50s of exiting the defrosting compressor.

(4) Evaporator frozen-preventing protection function

At the mode of Cooling, dehumidifying:

Evaporator frozen-preventing protection function is allowed to begin after 6 min of starting the compressor.

1. Starting estimation:

After the compressor stopped working for 180s, if $T_{inner\ pipe} > [T_{frozen\text{-}preventing\ frequency\text{-}limited\ temperature}$ (the temperature of hysteresis is 35.6ºF)], the machine is only allowed to start for operating, otherwise it should not be started, and should be stopped to treat according to the frozen-preventing protection: Clear the trouble under the mode of power turn-off / heating, and the protection times are not counted.

2. Frequency limited

$[T_{frozen\text{-}preventing\ normal\ speed\ frequency\text{-}reducing\ temperature}] \le [T_{inner\ pipe\ T\ frozen\text{-}preventing\ frequency\text{-}limited\ temperature}]$, you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed:

If $[T_{frozen\text{-}preventing\ high\ speed\ frequency\text{-}reducing\ temperature}] \le [T_{inner\ pipe\ T\ frozen\text{-}preventing\ normal\ speed\ frequency\text{-}reducing\ temperature}]$, you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit;

4. Reducing frequency at high speed:

If $[T_{frozen\text{-}preventing\ power\ turn\text{-}off\ temperature}] \le T_{inner\ pipe}$ $[T_{frozen\text{-}preventing\ high\ speed\ frequency\text{-}reducing\ temperature}]$ you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit;

5. Power turn-off:

If the $T_{inner\ pipe} < [T_{frozen\text{-}preventing\ power\ turn\text{-}off\ temperature}]$, then frozen-preventing protect to stop the machine; If $T[_{frozen\text{-}preventing\ frequency\text{-}limited\ temperature}] < T_{inner\ pipe}$, and the compressor has stopped working for 3 minutes, the whole machine should be allowed to operate.

6. If the frozen-preventing protection power turn-off continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume if the fault keeps on. During the process of running, if the running time of compressor exceeds the t evaporator frozen-preventing protection times zero clearing time , the times of frozen-preventing power turn-off should be cleared to recount. The mode of stopping the machine or transferring to supply air will clear the trouble times immediately (if the trouble can not be resumed, mode transferring will not clear it).

(5) Overload protection function

Overload protection function at the mode of Cooling and dehumidifying

1. Starting estimation:

After the compressor stopped working for 180s, if $T_{outer\ pipe} < [T_{Cooling\ overload\ frequency\text{-}limited\ temperature}]$ (the temperature of hysteresis is 35.6ºF), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the overload protection: Clear the trouble at the mode of power turn-off / heating, and the protection times are not counted.

2. Frequency limited

If $[T_{Cooling\ overload\ frequency\text{-}limited\ temperature}] \le [T_{outer\ pipe\ T\ Cooling\ overload\ frequency\ reducing\ temperature\ at\ normal\ speed}]$, you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed and power turn-off:

If $[T_{Cooling\ overload\ frequency\ reducing\ temperature\ at\ high\ speed}] \le T_{outer\ pipe} < [T_{Cooling\ overload\ power\ turn\text{-}off\ temperature}]$, you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit; After it was running 90s at the lower limit, if $[T_{Cooling\ overload\ frequency\ reducing\ temperature\ at\ normal\ speed}] \le T_{outer\ pipe}$, then Cooling overload protects machine stopping;

4. Reducing frequency at high speed and stop machine:

If $[T_{Cooling\ overload\ frequency\ reducing\ temperature\ at\ high\ speed}] \le T_{outer\ pipe}$ $[T_{Cooling\ overload\ power\ turn\text{-}off\ temperature}]$, you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit; After it was running 90s at the lower limit, if $[T_{Cooling\ overload\ frequency\ reducing\ temperature\ at\ normal\ speed}] \le [T_{outer\ pipe}]$, then Cooling overload protects machine stopping;

5. Power turn-off:

If the $[T_{Cooling\ overload\ power\ turn\text{-}off\ temperature}] \le T_{outer\ pipe}$, then Cooling overload protects machine stopping; If $[T_{outer\ pipe}] < [T_{Cooling\ overload\ frequency\text{-}limited\ temperature}]$and the compressor has been stopped working for 3 minutes, the machine should be allowed to operate.

6. If the Cooling overload protection power turn-off continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume if the fault keeps on. During the process of running, if the running time of compressor exceeds the t overload protection times zero clearing time , the times of overload protection power turn-off should be cleared to recount. The mode of stopping the machine or transferring to supply air will clear the trouble times immediately (if the trouble can not be resumed, transferring mode will not clear it).

Overload protection function at the mode of heating

Starting estimation :

After the compressor stopped working for 180s, if $T_{inner\ pipe}$ $T_{heating\ overload\ frequency\text{-}limited\ temperature}$ (the temperature of hysteresis is 35.6ºF

), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the overload protection:

Clear the trouble at the mode of power turn-off / heating, and the protection times are not counted.

1. Frequency limited

If $[T_{\text{heating overload frequency-limited temperature}}] \leq T_{\text{inner pipe}} < [T_{\text{heating overload frequency reducing temperature at normal speed}}]$, you should limit the frequency raising of compressor.

2. Reducing frequency at normal speed and stopping machine:

If $T[_{\text{heating overload frequency reducing temperature at normal speed}}] \leq T_{\text{inner pipe}} < [T_{\text{heating overload frequency reducing temperature at high speed}}]$, you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit; After it was running 90s at the lower limit, if T heating overload frequency reducing temperature at normal speed ≤T inner pipe, then overload protects machine stopping;

3. Reducing frequency at high speed and power turn-off:

If $[T_{\text{heating overload frequency reducing temperature at high speed}}] \leq T_{\text{inner pipe}} < [T_{\text{heating overload power turn-off temperature}}]$, you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit; After it was running 90s at the lower limit, if $T_{\text{heating overload frequency reducing temperature at normal speed}} \leq T_{\text{outer pipe}}$, then Cooling overload protects machine stopping;

4. Power turn-off:

If the $[T_{\text{heating overload power turn-off temperature}}] \leq T_{\text{inner pipe}}$, then overload protects machine stopping; If $T_{\text{inner pipe}}$ $T_{\text{heating overload frequency-limited temperature}}$ and the compressor has been stopped working for 3 minutes, the machine should be allowed to operate.

5. If the overload protection power turn-off continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume if the fault keeps on. During the process of running, if the running time of compressor exceeds the t overload protection times zero clearing time , the times of overload protection power turn-off should be cleared to recount. The mode of stopping the machine or transferring to supply air will clear the trouble times immediately (if the trouble can not be resumed, transferring mode will not clear it). Protective function for discharge temperature of compressor

1. Starting estimation:

After the compressor stopped working for 180s, if $T_{\text{Discharge}} < T_{\text{Discharge limited temperature}}$ (the temperature of hysteresis is 35.6ºF), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the discharge temperature:

The machine should be stopped or transferred to supply air, the trouble should be cleared immediately, and the protection times are not counted.

2. Frequency limited

If $[T_{\text{Limited frequency temperature during discharging}}] \leq T_{\text{Discharge}} < [T_{\text{frequency reducing temperature at normal speed during discharging}}]$, you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed and stopping machine:

If $[T_{\text{frequency reducing temperature at normal speed during discharging}}] \leq T_{\text{Discharge}} < [T_{\text{frequency reducing temperature at high speed during discharging}}]$, you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit; After it was running 90s at the lower limit, if $[T_{\text{frequency reducing temperature at normal speed during discharging}}] \leq T_{\text{Discharge}}$, you should discharge to protect machine stopping;

4. Reducing frequency at high speed and power turn-off:

If $[T_{\text{frequency reducing temperature at high speed during discharging}}] \leq T_{\text{Discharge}} < [T_{\text{Stop temperature during discharging}}]$, you should adjust

the compressor frequency by reducing 30Hz/90s till the lower limit; After it was running 90s at the lower limit, if $[T_{\text{frequency reducing temperature at normal speed during discharging}}] \leq T_{\text{Discharge}}$, you should discharge to protect machine stopping;

5. Power turn-off:

If the $[T_{\text{Power turn-off temperature during discharging}}] \leq T_{\text{Discharge}}$, you should discharge to protect machine stopping; If $[T_{\text{Discharge}}] < [T_{\text{Limited frequency temperature during discharging}}]$ and the compressor has been stopped for 3 minutes, the machine should be allowed to operate.

6. If the discharging temperature protection of compressor continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume. During the process of running, if the running time of compressor exceeds the t Protection times clearing of discharge , the discharge protection is cleared to recount. Stopped or transferred to supply air mode will clear the trouble times immediately (if the trouble can not be resumed, mode transferring also will not clear it).

7. Frequency limited

If $[I_{\text{Limited frequency when overcurrent}}] \leq I_{\text{AC Electric current}} < [I_{\text{frequency reducing when overcurrent}}]$, you should limit the frequency raising of compressor.

8. Reducing frequency:

If $[I_{\text{Frequency reducing when overcurrent}}] \leq [I_{\text{AC Electric current I Power turn-off when overcurrent}}]$, you should reduce the compressor frequency till the lower limit or exit the frequency reducing condition;

9. Power turn-off:

If $[I_{\text{Power turn-off machine when overcurrent}}] \leq [I_{\text{AC Electric current}}]$, you should carry out the overcurrent stopping protection; If $I_{\text{AC Electric current}} < [T_{\text{Limited frequency when overcurrent}}]$ and the compressor has been stopped for 3 minutes, the machine should be allowed to operate.

10. If the overcurrent protection continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume. During the process of running, if the running time of compressor exceeds the $[t_{\text{Protection times clearing of over current}}]$, the discharge protection is cleared to recount.

(6) Voltage sag protection

After start the compressor, if the time of DC link Voltage sag $[U_{\text{Sagging protection voltage}}]$ is measured to be less than t Voltage sag protection time , the machine should be stop at once, hand on the voltage sag trouble, reboot automatically after 30 minutes.

(7) Communication fault

When you have not received any correct signal from the inner machine in three minutes, the machine will stop for communication fault. When you have not received any correct signal from driver IC (aim to the controller for the separating of main control IC and

driver IC), and the machine will stop for communication fault. If the communication is resumed, the machine will be allowed to operate.

(8) Module protection

Testing the module protective signal immediately after started, once the module protective signal is measured, stop the machine with module protection immediately. If the module protection is resumed, the machine will be allowed to operate. If the module protection continuously occurs for three times, it should not be resumed automatically, and you should press the ON/OFF button to resume. If the running time of compressor exceeds the [$t_{\text{Protection times clearing of module}}$] , the module protection is cleared to recount.

(9) Module overheating protection

1. Starting estimation:

After the compressor stopped working for 180s, if T_{Module}<[$T_{\text{Module frequency limited temperature}}$](the temperature of hysteresis is 35.6ºF), the machine is allowed to start, otherwise it should not be started, and should be stopped to treat according to the module overheating protection: The machine should be stopped or transferred to supply air, the trouble should be cleared immediately, and the protection times are not counted.

2. Frequency limited

If [$T_{\text{Limited frequency temperature of module}}$] ≤$T_{Module}$ <[$T_{\text{frequency reducing temperature at normal speed of module}}$] , you should limit the frequency raising of compressor.

3. Reducing frequency at normal speed and power turn-off:

If [$T_{\text{frequency reducing temperature at normal speed of module}}$] ≤$T_{Module}$<[$T_{\text{frequency reducing temperature at high speed of module}}$], you should adjust the compressor frequency by reducing 8Hz/90s till the lower limit; After it was running 90s at the lower limit, if [$T_{\text{frequency reducing temperature at normal speed of module}}$] ≤$T_{\text{Module}}$, you should stop the machine for module overheating protection;

4. Reducing frequency at high speed and power turn-off:

If [$T_{\text{frequency reducing temperature at high speed of module}}$]≤$T_{Module}$ <[$T_{\text{Power turn-off temperature of module}}$] you should adjust the compressor frequency by reducing 30Hz/90s till the lower limit; After it was running 90s at the lower limit, if [$T_{\text{frequency reducing temperature at normal speed of module}}$] ≤$T_{\text{Module}}$, you should stop the machine for module overheating protection;

5. Power turn-off:

If the [$T_{\text{Power turn-off temperature of module}}$] ≤$T_{Module}$, you should stop the machine for module overheating protection; If T_{Module} <[$T_{\text{Limited frequency temperature of module}}$] and the compressor has been stopped for 3 minutes, the machine should be allowed to operate.

6. If protection continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume. During the process of running, if the running time of compressor exceeds the [$t_{\text{Protection times clearing of module}}$] , the discharge protection is cleared to recount. Stopped or transferred to supply air mode will clear the trouble times immediately (if the trouble can not be resumed, mode transferring also will not clear it).

(10) Compressor overloads protection

If you measure the compressor overload switch action in 3s, the compressor should be stopped for overloading. The machine should be allowed to operate after overload protection was measured to resume. If the overloading protection continuously occurs for three times, it should not be resumed automatically, and you should press the ON/OFF button to resume. The protection times of compressor is allowed to clear after the compressor run [$t_{\text{Protection times clearing of compressor overloading}}$] 30 minutes.

(11) Phase current overcurrent protection of compressor

During the running process of compressor, you could measure the phase current of the compressor, and control it according to the following steps:

1. Frequency limited

If [$I_{\text{Limited frequency phase current}}$] ≤[$I_{\text{Phase current T frequency reducing phase current}}$] , you should limit the frequency raising of compressor.

2. Reducing Frequency

If [$I_{\text{Frequency Reducing Phase Current}}$]≤I Phase Current<[$I_{\text{Power Turn-Off Phase Current}}$], the compressor shall continue to reduce frequency till the lowest frequency limit or out of the condition of reducing frequency;

3. Power turn-off

If [$I_{\text{Phase Current}}$]≥[$I_{\text{Power Turn-Off Phase Current}}$], the compressor phase current shall stop working for overcurrent protection; if [$I_{\text{Phase Current}}$]≤[$I_{\text{Frequency Reducing Phase Current}}$], and the compressor have stopped working for 3 min, the machine shall be allowed to operate;

4. If the overcurrent protection of compressor phase current continuously occurs for six times, it should not be resumed automatically, and you should press the ON/OFF button to resume. During the process of running, if the running time of compressor exceeds the [$t_{\text{Clearing Time of Compressor Phase Current Times}}$] , the overcurrent protection is cleared to recount.

(12) Starting-up Failure Protection for Compressor

Stop the compressor after its starting-up fails, restart it after 20s if the fault doesnt shows, and if they are all failing for the successive start 3 times, it shall be reported as Starting-up Failure, and then restart up it after 3 min. When it still not be able to operate through carry out the above process for 5 times, it is available if press ON/OFF. And the compressor should be cleared the times after it run 2 min.

(13) Out-of-Step Protection for Compressor

The out-of-step protection signal should be detected immediately after starting-up compressor, and once find the out-of-step protection signal, the out-of-step protection shall be stopped; if it can run for lasting power turn-off 3 min, the machine shall be allowed to operate. If it still cant run automatically when the out-of-step protection for compressor happens to stop working for 6 times in succession, it needs to press ON/OFF to operate. And if the running time is more than 10 min, the power turn-off times for out-of-step protection shall be cleared and recounted.

(14) Voltage Abnormity Protection for DC Bus

To detect voltage abnormity protection for dc bus after completing the pre-charge:

1.Over-High Voltage Protection for DC Bus:

If it found the DCbus voltage U_{DC} >[$UDC_{\text{Jiekuangchun Protection}}$], turn off PFC and stop the compressor at once, and it shall show the DC over-high voltage failure; it should clear out the failure when the voltage dropped to U_{DC} <[$UDC_{\text{Jiekuangchun Recovery}}$] and the compressor

stopped for 3 min.

2.Over-Low Voltage Protection for DC Bus:

If it found the DC bus voltage U_{DC} <[$U_{DC\ Wantuochun\ Protection}$], turn off PFC and stop the compressor at once, and it shall show the DC over-low voltage; and it should clear out the failure when the voltage raised to U_{DC} >[$U_{DC\ Wantuochun\ Recovery}$] and the compressor stopped for 3 min.

3.To detect voltage abnormity protect for DC bus when getting electricity:

If it found the DC bus voltage U_{DC} >[$U_{DC——Over\text{-}High\ Voltage}$], turn off the relay at once, and shows voltage abnormity failure for DC Bus. And the failure cant recover except to break off and get the electricity.

(15) Abnormity Protection for Four-way Valve

Under the model of heating operation in good condition: the compressor is detected [$T_{Inner\ Tube}$ <($T_{Inner\ Ring}$-$T_{Abnormity\ Temperature\ Difference\ For\ Four\text{-}Way\ Valve\ Reversion}$)], during the running, it should be regarded as four-way valve reversion abnormity. And then it can run if stop the reversion abnormity protection for four-way valve 3 min; and if it still cant run when the reversion abnormity protection for four-way valve happens to stop working for 3 times in succession, it is available if presses ON/OFF.

Attention: the protection shall be shielded during the testing mode and defrosting process, and it shall be cleared out the failure and its times immediately when turning off or delivering wind / cooling / dehumidifying mode conversed (the inverted mode dont clear out the failure when it cant recover to operate).

(16) PFC Protection

1. After start up the PFC, it should detect the protection signal of PFC immediately; under the condition of PFC protection, it should turn off the PFC and compressor at one time;
2. It shows the failure is cleared out if PFC Protection stopped working 3 min and recovers to run automatically;
3. If it still cant run when it occurs PFC protection for 3 times in succession, it is available if presses ON/OFF; and clear the PFC Protection times when start up PFC for 10min.

(17) Failure Detection for Sensor

1. Outdoor Ambient Sensor: detect the failure of sensor at all times.
2. Outdoor Tube Sensor: You should not detect the failure of outdoor tube sensor within 10 minutes heating
operation compressor except the defrosting, and you could detect it at other time.
3. Outdoor Exhaust Sensor:
(a) The compressor only detect the sensor failure after it start up 3 min in normal mode;
(b) It should detect the exhaust sensor failure immediately in the testing mode.
4. Module Temperature Sensor:
(a) Short-Circuit Detection: the compressor should be detected immediately when the module temperature
sensor occurs short-circuits;
(b) Open-Circuit Detection: the compressor should be detected on open-circuit when it runs 3min (it neednt 30s
avoiding the module over-heated).
(c) Detect the sensor failure at all times in the testing mode.
5. Disposal for Sensor Protection
(1) When the short-circuit of sensor is detected within 30s, It is regarded as the temperature of sensor over-high (or infinitely high), and now according to the over-high sensor, the machine should carry out the corresponding protection to stop working, and show the corresponding temperature shutdown protection and sensor failure at the same time (for example: the compressor stops immediately when the outdoor tube sensor short-circuit, and the machine shall show the overload protection and outdoor tube sensor failure).
(2) When the open-circuit of sensor is detected within 30s, The protection shall be stopped and it shall show the corresponding sensor failure.
6. Electric Heating Function of Chassis
(1) When $T_{outdoor\ amb.}$≤32ºF , the electric heating of chassis will operate;
(2) When $T_{outdoor\ amb.}$>35.6ºF , the electric heating of chassis will stop operation;
(3)When 32ºF <$T_{outdoor\ amb.}$≤35.6ºF, the electric heating of chassis will keep original status.
7. Electric Heating Function of Compressor
(1) When $T_{outdoor\ amb.}$≤≤23ºF , compressor stops operation, while the electric heating of compressor starts operation;
(2) When $T_{outdoor\ amb.}$>28.4ºF , the electric heating of compressor stops operation;
(3) When 23ºF <$T_{outdoor\ amb.}$≤28.4ºF , the electric heating of compressor will keep original status.
6. Electric Heating Function of Chassis
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(2) When $T_{outdoor\ amb.}$>28.4ºF , the electric heating of compressor stops operation;
(3) When 23ºF <$T_{outdoor\ amb.}$≤28.4ºF , the electric heating of compressor will keep original status.

7. Notes for Installation and Maintenance

Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.

The following contents are very important for installation and maintenance.

Caution: Installation Must be Performed in Accordance with the NEC/CEC by Authorized Personnel Only.

Please follow the instructions below.

●The installation or maintenance must accord with the instructions.

●Comply with all national electrical codes and local electrical codes.

●Pay attention to the warnings and cautions in this manual.

●All installation and maintenance shall be performed by distributor or qualified person.

●All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.

●Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty and other accidents.

⚠ WARNINGS

Electrical Safety Precautions:

1. Cut off the power supply of air conditioner before checking and maintenance.

2. The air condition must apply specialized circuit and prohibit share the same circuit with other appliances.

3. The air conditioner should be installed in suitable location and ensure the power plug is touchable.

4. Make sure each wiring terminal is connected firmly during installation and maintenance.

5. Have the unit adequately grounded. The grounding wire can't be used for other purposes.

6. Must apply protective accessories such as protective boards, cable-cross loop and wire clip.

7. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.

8. The power cord and power connection wires can't be pressed by hard objects.

9. If power cord or connection wire is broken, it must be replaced by a qualified person.

10. If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.

11. For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

12. Make sure all wires and pipes are connected properly and the valves are opened before energizing.

13. Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.

14. Replace the fuse with a new one of the same specification if it is burnt down; Don't replace it with a cooper wire or conducting wire.

15. If the unit is to be installed in a humid place, the circuit breaker must be installed.

Installation Safety Precautions:

1. Select the installation location according to the requirement of this manual.(See the requirements in installation part)

2. Handle unit transportation with care; the unit should not be carried by only one person if it is more than 20kg.

3. When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.

4. Ware safety belt if the height of working is above 2m.

5. Use equipped components or appointed components during installation.

6. Make sure no foreign objects are left in the unit after finishing installation.

Refrigerant Safety Precautions:

1. When refrigerant leaks or requires discharge during installation, maintenance, or disassembly, it should be handled by certified professionals or otherwise in compliance with local laws and regulations.

2. Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.

3. Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture or other hazards.

4. Make sure no refrigerant gas is leaking out when installation is completed.

5. If there is refrigerant leakage, please take sufficient measure to minimize the density of refrigerant.

6. Never touch the refrigerant piping or compressor without wearing glove to avoid scald or frostbite.

Improper installation may lead to fire hazard, explosion, electric shock or injury.

Safety Precautions for Installing and Relocating the Unit:

To ensure safety, please be mindful of the following precautions.

⚠ WARNINGS

1. When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.

Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.

2. When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.

Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even series safety accident.

3. When refrigerant needs to be recovered during relocating or repairing the unit, be sure that the unit is running in cooling mode.Then, fully close the valve at high pressure side (liquid valve).About 30-40 seconds later, fully close the valve at low pressure side (gas valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.

If refrigerant recovery takes too much time, air may be sucked in and cause pressure rise or compressor rupture, resulting in injury.

4. During refrigerant recovery, make sure that liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

5. When installing the unit, make sure that connection pipe is securely connected before the compressor starts running.

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

6. Prohibit installing the unit at the place where there may be leaked corrosive gas or flammable gas.

If there leaked gas around the unit, it may cause explosion and other accidents.

7. Do not use extension cords for electrical connections. If the electric wire is not long enough, please contact a local service center authorized and ask for a proper electric wire.

Poor connections may lead to electric shock or fire.

8. Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.

Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.

Main Tools for Installation and Maintenance



Level meter



Measuring tape



Screw driver



Impact drill



Drill head



Electric drill



Electroprobe



Universal meter



Torque wrench



Open-end wrench



Inner hexagon spanner



Electronic leakage detector



Vacuum pump



Pressure meter



Pipe pliers



Pipe pliers



Pipe cutter



Pipe expander



Pipe bender



Soldering appliance



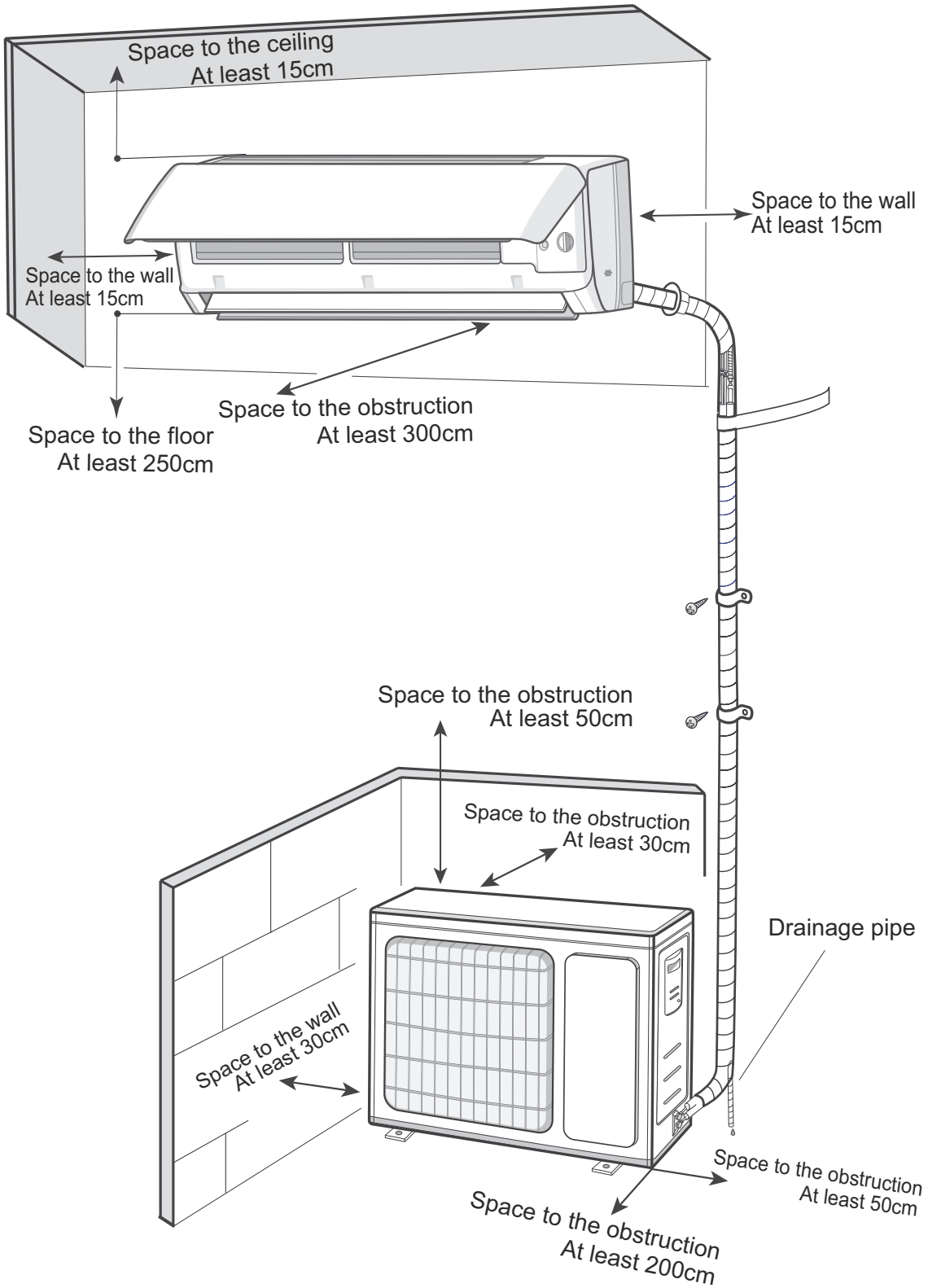
Refrigerant container



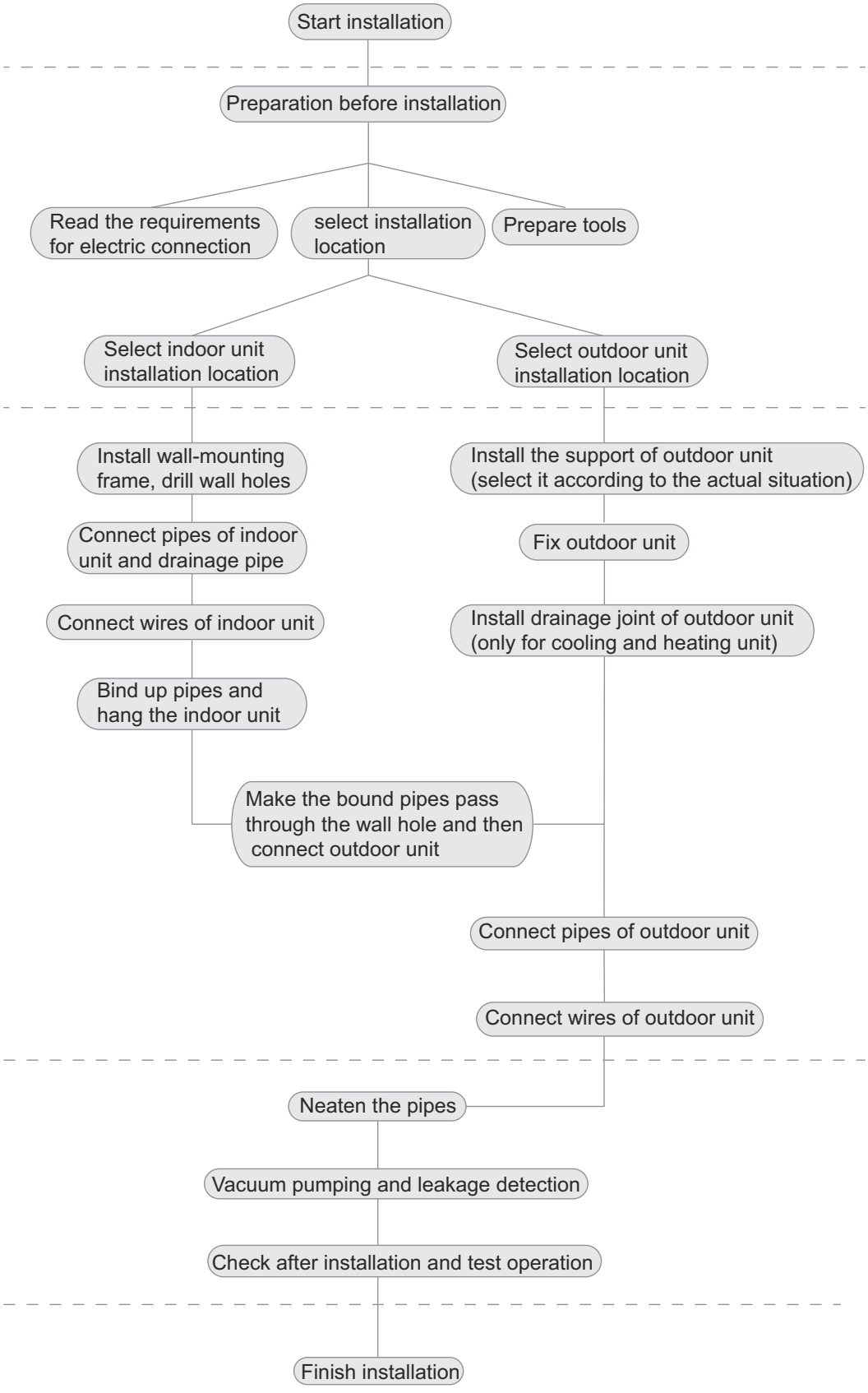
Electronic scale

8. Installation

8.1 Installation Dimension Diagram



Installation Procedures



Note: this flow is only for reference; please find the more detailed installation steps in this section.

8.2 Installation Parts-checking

No.	Name
1	Indoor unit
2	Outdoor unit
3	Connection pipe
4	Drainage pipe
5	Wall-mounting frame
6	Connecting cable(power cord)
7	Wall pipe
8	Sealing gum
9	Wrapping tape
10	Support of outdoor unit
11	Fixing screw
12	Drainage plug(cooling and heating unit)
13	Owners manual, remote controller

⚠ **Note:**
1.Please contact the local agent for installation.
2.Don't use unqualified power cord.

8.3 Selection of Installation Location

1. Basic Requirement:

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:

(1) The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.

(2) The place with high-frequency devices (such as welding machine, medical equipment).

(3) The place near coast area.

(4) The place with oil or fumes in the air.

(5) The place with sulfureted gas.

(6) Other places with special circumstances.

(7) The appliance shall nost be installed in the laundry.

(8) It's not allowed to be installed on the unstable or motive base structure (such as truck) or in the corrosive environment (such as chemical factory).

2. Indoor Unit:

(1) There should be no obstruction near air inlet and air outlet.

(2) Select a location where the condensation water can be dispersed easily andwon't affect other people.

(3) Select a location which is convenient to connect the outdoor unit and near the power socket.

(4) Select a location which is out of reach for children.

(5) The location should be able to withstand the weight of indoor unit and won't increase noise and vibration.

(6) The appliance must be installed 2.5m above floor.

(7) Don't install the indoor unit right above the electric appliance.

(8) Please try your best to keep way from fluorescent lamp.

3. Outdoor Unit:

(1) Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.

(2) The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.

(3) The location should be able to withstand the weight of outdoor unit.

(4) Make sure that the installation follows the requirement of installation dimension diagram.

(5) Select a location which is out of reach for children and far away from animals or plants.If it is unavoidable, please add fence for safety purpose.

8.4 Electric Connection Requirement

1. Safety Precaution

(1) Must follow the electric safety regulations when installing the unit.

(2) According to the local safety regulations, use qualified power supply circuit and air switch.

(3) Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock, fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.

(4) Properly connect the live wire, neutral wire and grounding wire of power socket.

(5) Be sure to cut off the power supply before proceeding any work related to electricity and safety.

(6) Do not put through the power before finishing installation.

(7) The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

(8) The appliance shall be installed in accordance with national wiring regulations.

2. Grounding Requirement:

(1) The air conditioner is Ⅰ class electric appliance. It must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.

(2) The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.

(3) The grounding resistance should comply with national electric safety regulations.

(4) The appliance must be positioned so that the plug is accessible.

(5) An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

8.5 Installation of Indoor Unit

1. Choosing Installation location

Recommend the installation location to the client and then confirm it with the client.

2. Install Wall-mounting Frame

(1) Hang the wall-mounting frame on the wall; adjust it in horizontal position with the level meter and then point out the screw fixing holes on the wall.

(2) Drill the screw fixing holes on the wall with impact drill (the specification of drill head should be the same as the plastic expansion particle) and then fill the plastic expansion particles in the holes.

(3) Fix the wall-mounting frame on the wall with tapping screws and then check if the frame is firmly installed by pulling the frame. If the plastic expansion particle is loose, please drill another fixing hole nearby.

3.Drill piping hole

(1) Choose the position of piping hole according to the direction of outlet pipe. The position of piping hole should be a little lower than the wall-mounted frame.(As show in Fig.1)

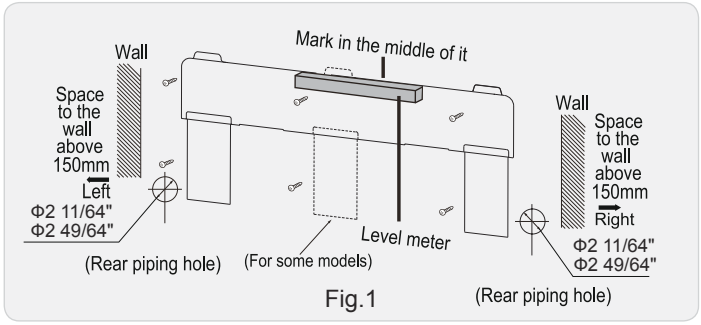


Fig.1

(2) Drill a piping hole with the diameter of Φ2 11/64"/Φ2 49/64" on the selected outlet pipe position.In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of 5-10°. (As show in Fig.2)

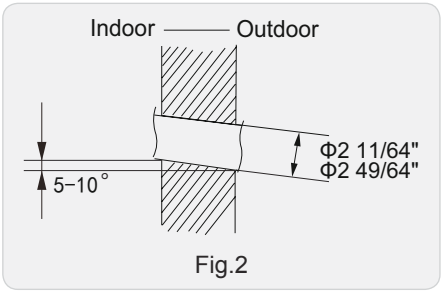


Fig.2

⚠ **Note:**

Pay attention to dust prevention and take relevant safety measures when drilling the hole.

4. Outlet Pipe

(1) The pipe can be led out in the direction of right, rear right, left or rear left. (As show in Fig.3)

(2) When selecting leading out the pipe from left or right, please cut off the corresponding hole on the bottom case. (As show in Fig.4)

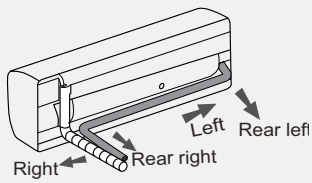


Fig.3

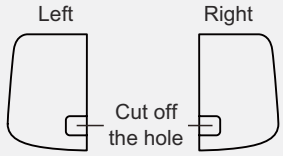


Fig.4

5. Connect the Pipe of Indoor Unit

(1) Aim the pipe joint at the corresponding bellmouth. (As show in Fig.5)

(2) Pretightening the union nut with hand.

(3) Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and place the torque wrench on the union nut. Tighten the union nut with torque wrench. (As show in Fig.6)

(4) Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape. (As show in Fig.7)

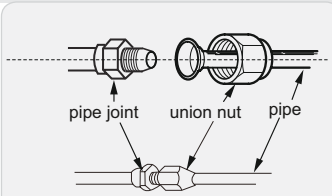


Fig.5

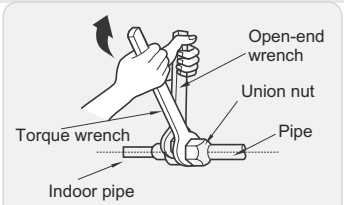


Fig.6

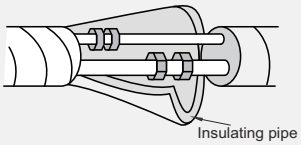


Fig.7

Refer to the following table for wrench moment of force:

Piping size (inch)	Tightening torque (N·m)
1/4	15~20
3/8	30~40
1/2	45~55
5/8	60~65
3/4	70~75

6. Install Drain Hose

(1) Connect the drain hose to the outlet pipe of indoor unit. (As show in Fig.8)

(2) Bind the joint with tape. (As show in Fig.9)

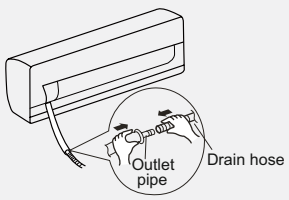


Fig.8

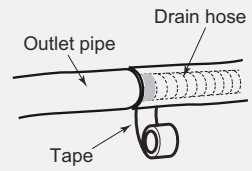


Fig.9

⚠ **Note:**

(1) Add insulating pipe in the indoor drain hose in order to prevent condensation.

(2) The plastic expansion particles are not provided.

(As show in Fig.10)

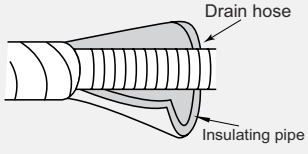


Fig.10

7. Connect Wire of Indoor Unit

(1) Open the panel, remove the screw on the wiring cover and then take down the cover. (As show in Fig.11)

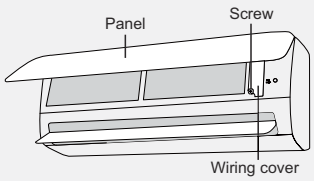


Fig.11

(2) Make the power connection wire go through the cable-cross hole at the back of indoor unit and then pull it out from the front side. (As show in Fig.12)

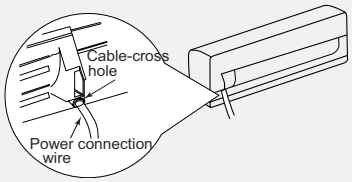
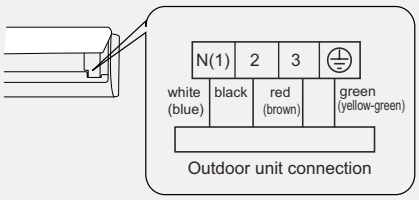


Fig.12

(3) Remove the wire clip; connect the power connection wiresignal control wire (only for cooling and heating unit) to the wiring terminal according to the color; tighten the screw and then fix the power connection wire with wire clip. (As show in Fig.13)



Note: The wiring connect is for reference only, please refer to the actual one.

Fig.13

(4) Put wiring cover back and then tighten the screw.

(5) Close the panel.

⚠ **Note:**

(1) All wires of indoor unit and outdoor unit should be connected by a professional.

(2) If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.

(3) For the air conditioner with plug, the plug should be reachable after finishing installation.

(4) For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

8. Bind up Pipe

(1) Bind up the connection pipe, power cord and drain hose with the band. (As show in Fig.14)

(2) Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose. (As show in Fig.15)

(3) Bind them evenly.

(4) The liquid pipe and gas pipe should be bound separately at the end.

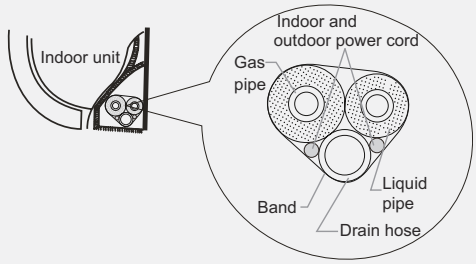


Fig.14

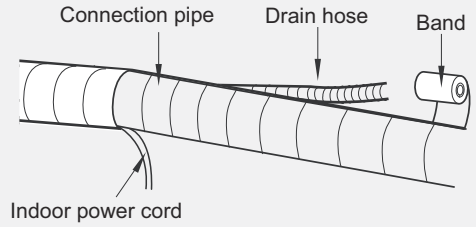


Fig.15

⚠ **Note:**

(1) The power cord and control wire can't be crossed or winding.

(2) The drain hose should be bound at the bottom.

9. Hang the Indoor Unit

(1) Put the bound pipes in the wall pipe and then make them pass through the wall hole.

(2) Hang the indoor unit on the wall-mounting frame.

(3) Stuff the gap between pipes and wall hole with sealing gum.

(4) Fix the wall pipe. (As show in Fig.16)

(5) Check if the indoor unit is installed firmly and closed to the wall. (As show in Fig.17)

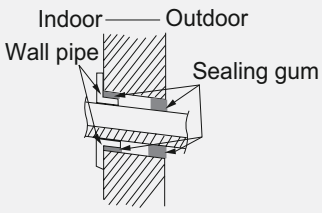


Fig.16

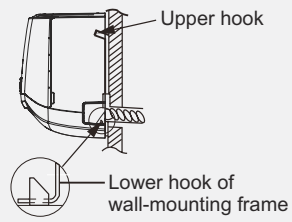


Fig.17

⚠ **Note:**

Do not bend the drain hose too excessively in order to prevent blocking.

8.6 Installation of Outdoor Unit

1. Fix the Support of Outdoor Unit(Select it according to the actual installation situation)

(1) Select installation location according to the house structure.

(2) Fix the support of outdoor unit on the selected location with expansion screws.

⚠ **Note:**

(1) Take sufficient protective measures when installing the outdoor unit.

(2) Make sure the support can withstand at least four times the unit weight.

(3) The outdoor unit should be installed at least 3cm above the floor in order to install drain joint.(As show in Fig.18)

(4) For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.

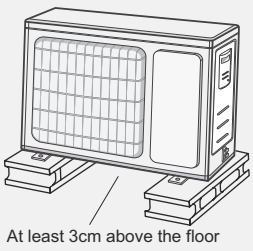


Fig.18

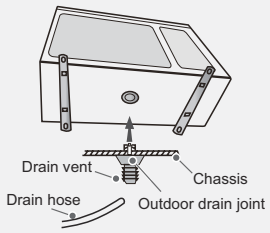


Fig.19

2. Install Drain Joint(Only for cooling and heating unit)

(1) Connect the outdoor drain joint into the hole on the chassis.

(2) Connect the drain hose into the drain vent.(As show in Fig.19)

3. Fix Outdoor Unit

(1) Place the outdoor unit on the support.

(2) Fix the foot holes of outdoor unit with bolts.(As show in Fig.20)

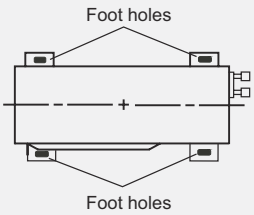


Fig.20

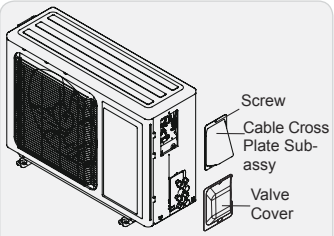


Fig.21

4. Connect Indoor and Outdoor Pipes

(1) Remove the screw on the right valve cover of outdoor unit and then remove the valve cover. (As show in Fig.21)

(2) Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe.

(3) Pretighten the union nut with hand.(As show in Fig.22)

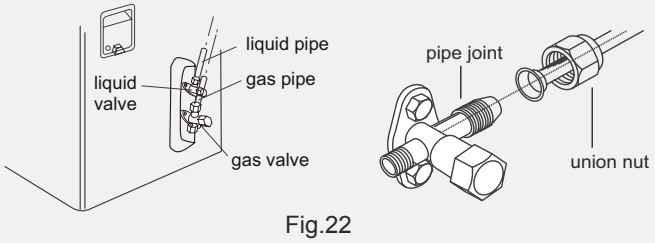


Fig.22

(4) Tighten the union nut with torque wrench by referring to the sheet below.

Piping size (inch)	Tightening torque (N·m)
1/4	15~20
3/8	30~40
1/2	45~55
5/8	60~65
3/4	70~75

5. Connect Outdoor Electric Wire

(1) Remove the wire clip; connect the power connection wire and signal control wire (only for cooling and heating unit) to the wiring terminal according to the color; fix them with screws. (As show in Fig.23)

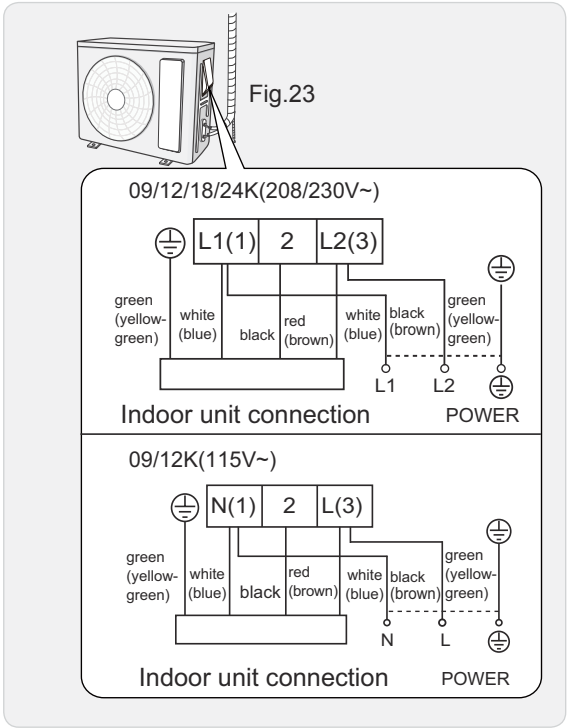


Fig.23

Note: the wiring connect is for reference only,please refer to the actual one.

⚠ **Note:**

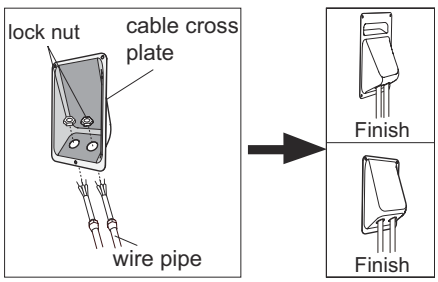
(1) After tightening the screw, pull the power cord slightly to check if it is firm.

(2) Never cut the power connection wire to prolong or shorten the distance.

(3) The connecting wire and connection pipe cannnot touch each other.

(4) Top cover of outdoor unit and electric box assembly should be fixec by the screw. Otherwise, it can cause a fire, or short circuit caused by water or dust.

Install the over line pipe



6. Neaten the Pipes

(1) The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 10cm.

(2) If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room. (As show in Fig.24)

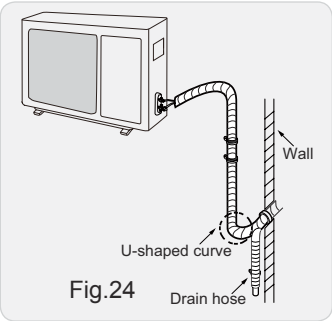


Fig.24

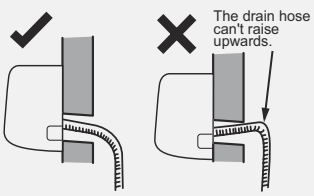


Fig.25

⚠ **Note:**
(1) The through-wall height of drain hose shouldnt be higher than the outlet pipe hole of indoor unit.(As show in Fig.25)
(2) Slant the drain hose slightly downwards. The drain hose can't be curved, raised and fluctuant, etc.(As show in Fig.26)
(3) The water outlet can't be placed in water in order to drain smoothly.(As show in Fig.27)

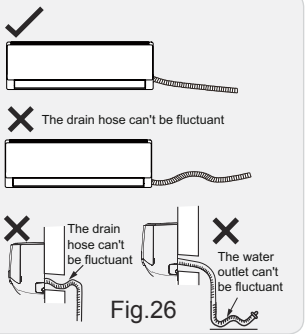


Fig.26

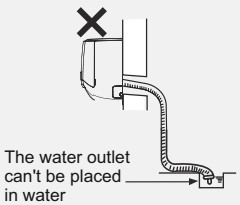
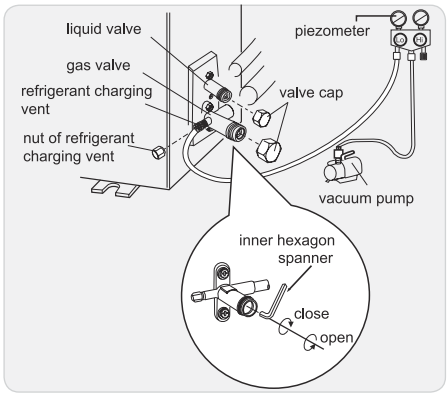


Fig.27

8.7 Vacuum Pumping and Leak Detection

1.Use vacuum pump

1. Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.
2. Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.
3. Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.
4. Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure decreases, there may be leakage.
5. Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.
6. Tighten the screw caps of valves and refrigerant charging vent.
7. Reinstall the handle.



2. Leakage Detection

(1) With leakage detector:
Check if there is leakage with leakage detector.
(2) With soap water:
If leakage detector is not available, please use soap water for leakage detection. Apply soap water at the suspected position and keep the soap water for more than 3min. If there are air bubbles coming out of this position, There's a leakage.

8.8 Check after Installation and Test Operation

1. Check after Installation

Check according to the following requirement after finishing installation.

NO.	Items to be checked	Possible malfunction
1	Has the unit been installed firmly?	The unit may drop, shake or emit noise.
2	Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
3	Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
4	Is water drained well?	It may cause condensation and water dripping.
5	Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damage the parts.
6	Is electric wiring and pipeline installed correctly?	It may cause malfunction or damage the parts.
7	Is the unit grounded securely?	It may cause electric leakage.
8	Does the power cord follow the specification?	It may cause malfunction or damage the parts.
9	Is there any obstruction in air inlet and air outlet?	It may cause insufficient cooling (heating) capacity.
10	The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
11	The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.
12	Is the inlet and outlet of piping hole been covered?	It may cause insufficient cooling(heating) capacity or waster eletricity.

2. Test Operation

(1) Preparation of test operation
- The client approves the air conditioner installation.
- Specify the important notes for air conditioner to the client.

(2) Method of test operation
- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
- If the ambient temperature is lower than 16℃ , the air conditioner can't start cooling.

9. Maintenance

9.1 Error Code List

Error code	Malfunction name	AC status	Possible causes
C5	Malfunction of jumper cap	The complete unit stops operation	1. Jumper cap is not installed in control panel; 2. Poor contact of jumper cap; 3. Jumper cap is damaged; 4. The tested circuit of jumper cap on control panel is abnormal.
E6	Communication malfunction between indoor unit and outdoor unit	Cool: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	See “Communication malfunction”
H5	IPM protection	Cool/Dry: compressor stops operation, while indoor fan operates. Heat: all loads stops operation.	See “IPM protection, over-phase current of compressor”
L3 LA	Malfunction of outdoor fan/ malfunction of DC motor	Cool/Dry: all loads stops operation except indoor fan. Heat: all loads stops operation.	1. Outdoor condenser, air inlet and air outlet are blocked by filth or dirt; 2. Fan is blocked or loosened; 3. Motor or connection wire of motor is damaged; 4. Main board of outdoor unit is damaged; (As for dual-outdoor fan, L3 indicates fan 1; LA indicates fan 2)
H3	Overload protection of compressor	Cool/Dry: compressor stops operation, while indoor fan operates. Heat: all loads stops operation.	1. Overload wire of compressor is loose; 2. The overload protector is damaged. Under normal circumstances, the resistance between both ends of terminal is less than 1ohm. 3.See “Overload protection of compressor , High discharge temperature protection of compressor”
F0	Refrigerant insufficient protection, cut-off protection of refrigerant	Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: Compressor, outdoor fan and indoor fan stops operation.	1. Is system cooling under high humidity environment, thus temperature difference of heat transfer is small; 2. Check whether the big valve and small valve of outdoor unit are opened completely; 3. Is the temperature sensor of evaporator of indoor unit loose? 4. Is the temperature sensor of condenser of outdoor unit loose? 5. Is the capillary or the electronic expansion valve blocked? 6. Is refrigerant leaking?
F1	Indoor ambient temperature sensor is open/short-circuited	Cool/Dry: indoor fan operates, while compressor and outdoor fan stops operation; Heat: all loads stops operation.	1. Temperature sensor is not well connected; 2. Temperature sensor is damaged 3. Main board of indoor unit is damaged.
F2	Indoor evaporator temperature sensor is open/short-circuited	Cool/Dry: indoor fan operates, while compressor and outdoor fan stops operation; Heat: all loads stops operation.	1. Temperature sensor is not well connected; 2. Temperature sensor is damaged 3. Main board of indoor unit is damaged.
H6	No feedback from indoor unit’s motor	The complete unit stops operation	1. Is the fan blocked? 2. Is the motor terminal loose? 3. Is the connection wire of motor damaged? 4. Is the motor damaged? 5. Is the main board of indoor unit damaged?
LP	Indoor unit and outdoor can be matched with each other	Heat: compressor, outdoor unit and indoor fan stops operation.	Capacity of indoor unit and outdoor unit can’t be matched.
C4	Malfunction of jumper cap of outdoor unit	Heat: all loads are stopped; other modes: outdoor unit stops operation.	Jumper cap of outdoor unit hasn’t been installed.
b7	Gas valve temperature sensor is ON / short-circuited		1. Temperature sensor is not well connected or damaged; 2. The wire of temperature sensor is damaged, causing short circuit to copper pipe or outer casing; 3. Main board of outdoor unit is damaged.

Error code	Malfunction name	AC status	Possible causes
b5	Liquid valve temperature sensor is ON / short-circuited		1. Temperature sensor is not well connected or damaged; 2. The wire of temperature sensor is damaged, causing short circuit to copper pipe or outer casing; 3. Main board of outdoor unit is damaged.
E1	High pressure protection of system	Cool/Dry: all loads stops operation except indoor fan; Heat: all loads stops operation.	1. Heat exchange of outdoor unit is too dirty, or it blocked the air inlet/outlet; 2. Is power voltage normal; (three-phase unit) 3. Ambient temperature is too high; 4. Wiring of high pressure switch is loose or high pressure switch is damaged; 5. The internal system is blocked; (dirt blockage, ice blockage, oil blockage, angle valve is not completely opened) 6. Main board of outdoor unit is damaged; 7. Refrigerant is too much.
E3	Low pressure/low system pressure protection/ compressor low pressure protection	Cool: compressor, outdoor fan and indoor fan stop operation; Heat: compressor and outdoor fan stop operation at first. About 1min later, indoor fan stops operation; 2mins later, the 4-way valve stop operation.	1. Low pressure switch is damaged; 2. Refrigerant inside the system is insufficient.
E4	High discharge temperature protection of compressor	Cool/Dry: compressor and outdoor fan stops operation, while indoor fan operates; Heat: all loads stops operation.	See “Overload protection of compressor , High discharge temperature protection of compressor”
E5	AC overcurrent protection	Cool/Dry: compressor and outdoor fan stops operation, while indoor fan operates; Heat: all loads stops operation.	1. Power voltage is unstable; 2. Power voltage is too low; 3. System load is too high, which leads to high current; 4. Heat exchange of indoor unit is too dirty, or it blocked the air inlet/outlet; 5. Fan motor operation is abnormal; the fan speed is too low or not functioning; 6. Compressor is blocked; 7. The internal system is blocked; (dirt blockage, ice blockage, oil blockage, angle valve is not completely opened) 8. Main board of outdoor unit is damaged. See “AC overcurrent protection”
E7	Mode shock/sysmte mode shock	Load of indoor unit stops operation (indoor fan, E-heater, swing)	Malfunction of one-to-more system; there may be two indoor units which has set the shock mode, such as one is cooling and the other is heating.
E8	High temperature prevention protection	Cool: compressor stops operation while indoor fan operates; Heat: all loads stops operation.	See “High temperature prevention protection; high power; system isabnormal”
EE	Malfunction of EEPROM	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	Main board of outdoor unit is damaged.
Fo	Refrigerant-recovery mode	Cool/Dry: compressor and outdoor fan stops operation, while indoor fan operates.	Refrigerant recovery. The maintenance personnel operate it when he is maintaining the unit.
F3	Outdoor ambient temperature is open/short-circuited	Cool/Dry: compressor and outdoor fan stop operation, while indoor fan operates; Heat: all loads stops operation.	1. Temperature sensor is not connected well or damaged; 2.Temperature sensor wire of outdoor unit is damaged; short circuit between the temperature sensor and copper pipe or outer case 3.Main board of outdoor unit is damaged;

Error code	Malfunction name	AC status	Possible causes
F4	Outdoor condenser temperature sensor is open/short-circuited	Cool/Dry: compressor and outdoor fan stop operation, while indoor fan operates; Heat: after operating for 3mins, all loads stops operation.	1. Temperature sensor is not connected well or damaged; 2. Temperature sensor wire of outdoor unit is damaged; short circuit between the temperature sensor and copper pipe or outer case; 3. Main board of outdoor unit is damaged.
F5	Outdoor air discharge temperature is open/short-circuited	Complete unit stops operation; motor of sliding door is cut off power.	1. The exhaust temperature sensor is not connected well or damaged. 2.Temperature sensor wire of outdoor unit is damaged; short circuit between the temperature sensor and copper pipe or outer case 3.Main board of outdoor unit is damaged;
FC	Malfunction of micro switch	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	1. The sliding door is blocked; 2. Malfunction of the photoelectric inspection panel of sliding door;
H4	System is abnormal	Cool/Dry: all loads stops operation except indoor fan; Heat: all loads stops operation.	See “High temperature prevention protection; high power; system isabnormal”
H7	Desynchronizing of compressor	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	See “Desynchronization diagnosis for compressor”
HC	PFC protection	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	1. The power grid quality is bad; AC input voltage fluctuates sharply; 2. Power plug of air conditioner or wiring board or reactor is not connected reliably; 3. Indoor and outdoor heat exchanger is too dirty, or air inlet/outlet is blocked; 4. Main board of outdoor unit is damaged.
HE	Demagnetization protection of compressor	Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation.	1. The main board of outdoor unit is damaged; 2. Compressor is damaged;
JF	Communication malfunction between indoor unit and inspection board	Normal operation	1. Poor connection between the indoor unit and the inspection board. 2.The main board of indoor unit is damaged; 3. The inspection board is damaged;
L1	Malfunction of humidity sensor	Compressor, outdoor fan and indoor fan stop operation;	The inspection board is damaged.
L9	High power protection	Cool: compressor and outdoor fan stops operation, while indoor fan operates.	See “High temperature prevention protection; high power; system is abnormal”
Lc	Start-up failed	Cool/Dry: compressor stops, while indoor fan operates; Heat: all loads stops operation.	See “Malfunction diagnosis for failure startup”
Ld	Lost phase	Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation.	1. The main board of outdoor unit is damaged; 2. The compressor is damaged; 3. The connection wire of compressor is not connected well.
PS	Over-phase current protection of compressor	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	See “Overload protection of compressor , High discharge temperature protection of compressor”

Error code	Malfunction name	AC status	Possible causes
oE	Undefined outdoor unit error	Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stop operation.	1. Outdoor ambient temperature exceeds the operation range of unit (eg: less than-20°C or more than 60°C for cooling; more than 30°C for heating); 2. Are wires of compressor not connected tightly? 3. Failure startup of compressor? 4. Is compressor damaged? 5. Is main board damaged?
P6	Communication malfunction between the drive board and the main board	Cool: compressor and outdoor fan stops operation; Heat: compressor and outdoor fan stop at first; about 1min later, indoor fan stops operation;	1. The drive board is damaged; 2. The main board of outdoor unit is damaged; 3. The drive board and the main board is not connected well.
P7	Circuit malfunction of module temperature sensor	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	Replace outdoor control board
P8	Module overheating protection	Cool: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	1. Air inlet / air outlet of outdoor unit are blocked by filth or dirt; 2. Condenser of outdoor unit is blocked by filth or dirt; 3. IPM screw of main board is not tightened; 4. Main board of outdoor unit is damaged;
PF	Malfunction of ambient temperature sensor of drive board	Cool: compressor, outdoor fan and indoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation.	1. The ambient temperature sensor of the drive board is not connected well; 2. Malfunction of the ambient temperature sensor of drive board.
PH	DC bus voltage is too high	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	1. Measure the voltage between position L and position N on the wiring board (XT). If it's higher than 265 VAC, please turn on the unit until the power voltage is decreased to the normal range; 2. If the AC input is normal, please replace the outdoor control board.
PL	DC bus voltage is too low	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	1. Measure the voltage between position L and position N on the wiring board (XT). If it's lower than 150 VAC, please turn on the unit until the power voltage is increased to the normal range; 2. If the AC input is normal, please replace the outdoor control board.
PU	Charging malfunction of capacitor	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	See "Charging malfunction of capacitor"
rF	Malfunction of RF module	Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation.	1. The connection wire of RF module is not connected well. 2. Malfunction of RF module;
U1	Phase current detection circuit malfunction of	Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stops operation.	The control board is damaged
U2	Lost phase protection of compressor	Cool: compressor and outdoor fan stop operation; Heat: compressor and outdoor fan stop operation at first; about 1min later, indoor fan stops operation.	1. The main board of outdoor unit is damaged; 2. The compressor is damaged; 3. The connection wire of compressor is not connected well.

Error code	Malfunction name	AC status	Possible causes
U3	DC bus voltage drop malfunction	Cool/Dry: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	The power voltage is unstable.
U5	Current detection malfunction of unit	Cool: compressor and outdoor fan stops operation, while indoor fan operates; Heat: compressor, outdoor fan and indoor fan stops operation.	1. Is the complete unit lacking of refrigerant? 2. There's malfunction for the circuit of control board of outdoor unit. Replace the control board of outdoor unit.
U7	4-way valve is abnormal	This malfunction occurs when the unit is heating. All loads stops operation.	1. Power voltage is lower than AC175V; 2. Wiring terminal of 4-way valve is loose or broken;3. 4-way valve is damaged. Replace the 4-way valve.
U8	Malfunction of zero-crossing signal of indoor unit	Compressor, outdoor fan and indoor fan stop operation.	1. The power is abnormal; 2. Main board of indoor unit is damaged.
U9	Zero-crossing malfunction of outdoor unit	Cool: compressor stops operation, while indoor fan operates; Heat: all loads stops operation.	Replace the control board of outdoor unit.
E2	Evaporator anti-freezing protection		Not error code, it is the status code in cooling process
E9	Anti cold air protection		Not error code, it is the status code in cooling process
	Defrosting	Heat indicator Flash once/10s	Not error code, it is the status code in cooling process

Analysis or processing of some of the malfunction display:

1. Compressor discharge protection

Possible causes: shortage of refrigerant; blockage of air filter; poor ventilation or air flow short pass for condenser; the system has noncondensing gas (such as air, water etc.); blockage of capillary assy (including filter); leakage inside four-way valve causes incorrect operation; malfunction of compressor; malfunction of protection relay; malfunction of discharge sensor; outdoor temperature too high.

Processing method: refer to the malfunction analysis in the above section.

2. Low voltage overcurrent protection

Possible cause: Sudden drop of supply voltage.

3.Communication malfunction

Processing method: Check if communication signal cable is connected reliably.

4. Sensor open or short circuit

Processing method: Check whether sensor is normal, connected with the corre sponding position on the controller and if damage of lead wire is found.

5. Compressor over load protection

Possible causes: insufficient or too much refrigrant; blockage of capillary and increase of suction temp.; improper running of compressor, burning in or stuck of bearing, damage of discharge valve; malfunction of protector.

Processing method: adjust refrigerant amount; replace the capillary; replace the compressor; use universal meter to check if the contactor of compress or is fine when it is not overheated, if not replace the protector.

6. System malfunction

i.e.overload protection.When tube temperature(Check the temperature of outdoor heat exchanger when cooling and check the temperatur e of indoor heat exchanger when heating) is too high, protection will be activated.

Possible causes: Outdoor temperature is too high when cooling; insufficient outdoor air circulation; refrigerant flow malfunction.

please refer to the malfunction analysis in the previous section for handling method .

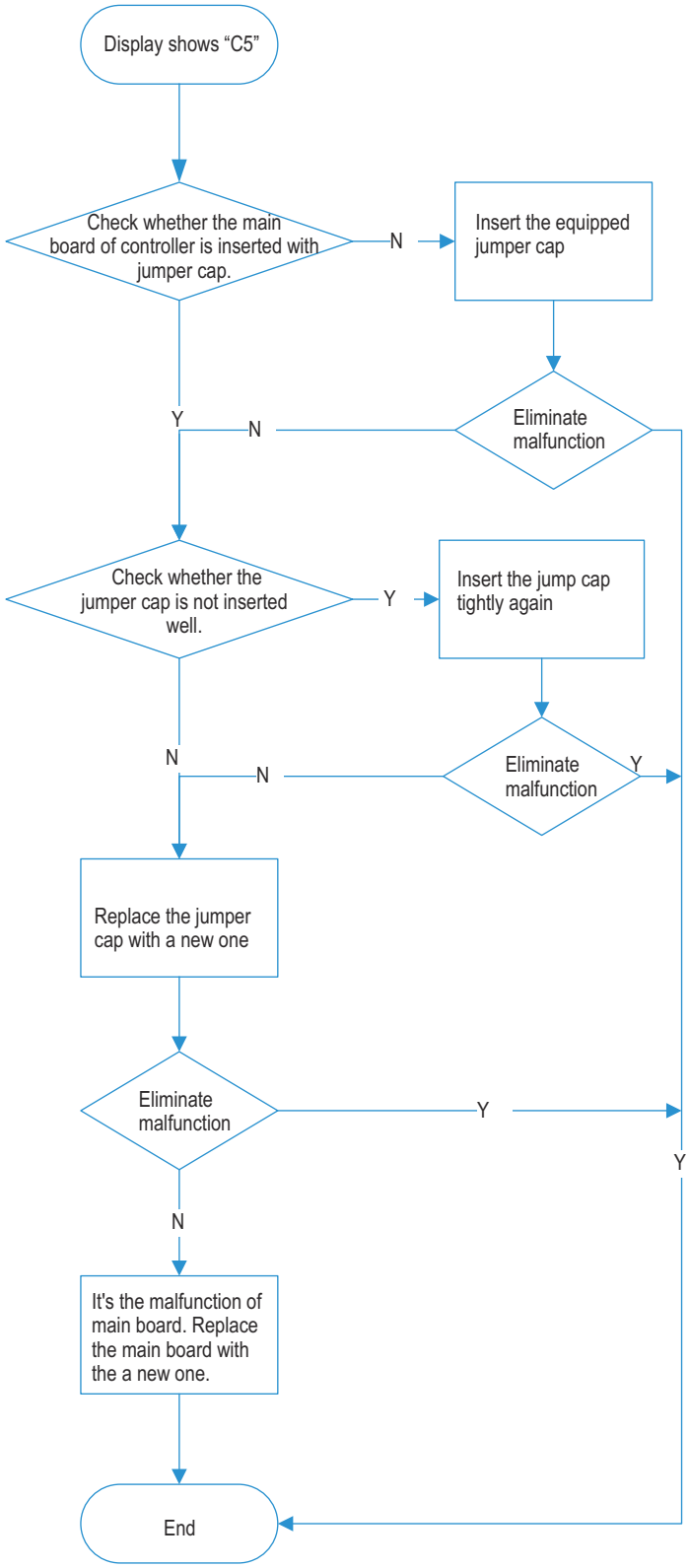
7. IPM module protection

Processing method:Once the module malfunction happens,if it persists for a long time and can not be selfcanceled, cut off the power and turn off the unit,and then re-energize the unit again after about 10 min.After repeating the procedure for sever times, if the malfunction still exists,replace the module.

9.2 Procedure of Troubleshooting

1. Troubleshooting for jumper cap C5

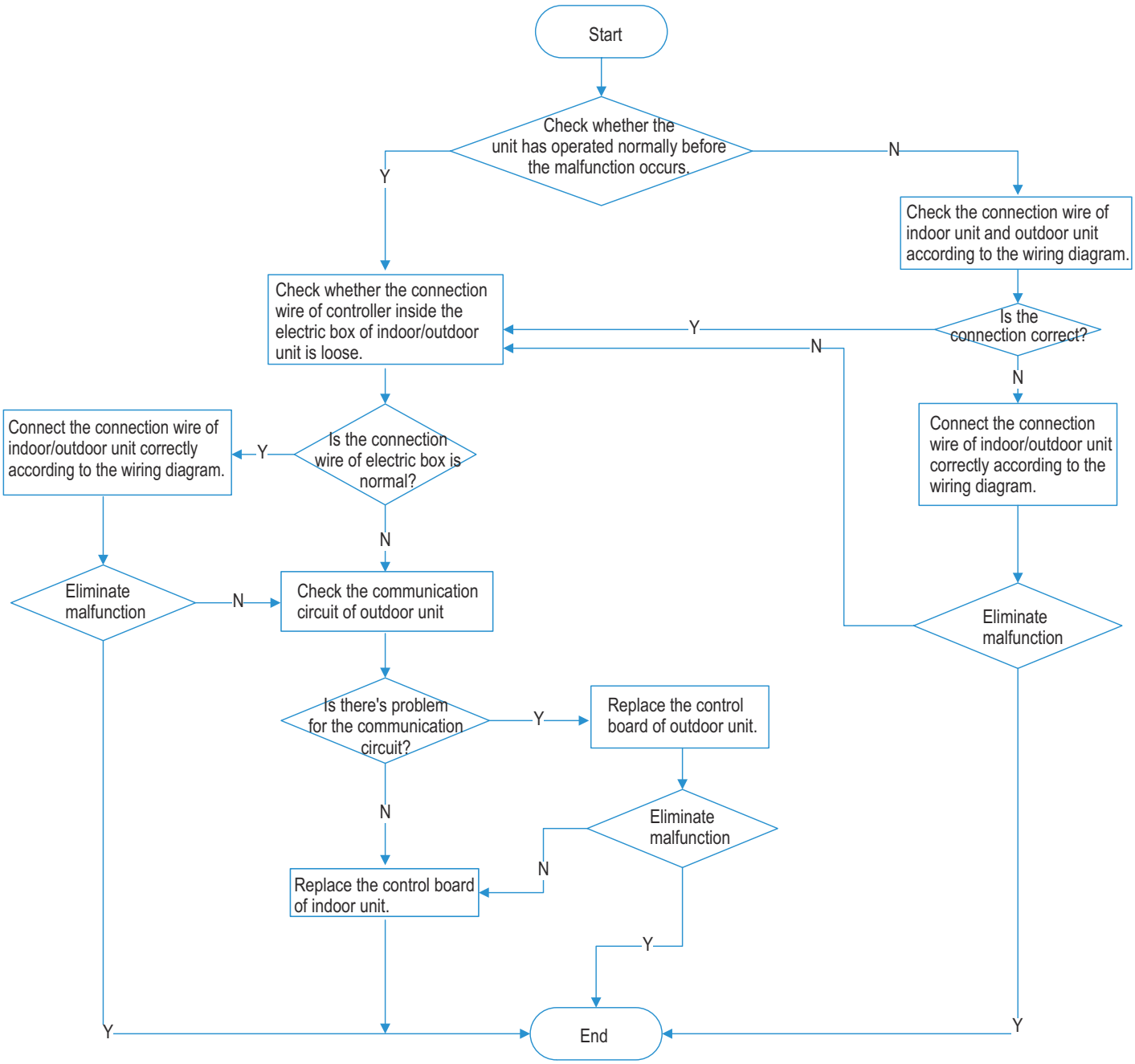
Main check points:
(1) jumper cap (2) control board of indoor unit



2. Communication malfunction E6

Main check points:

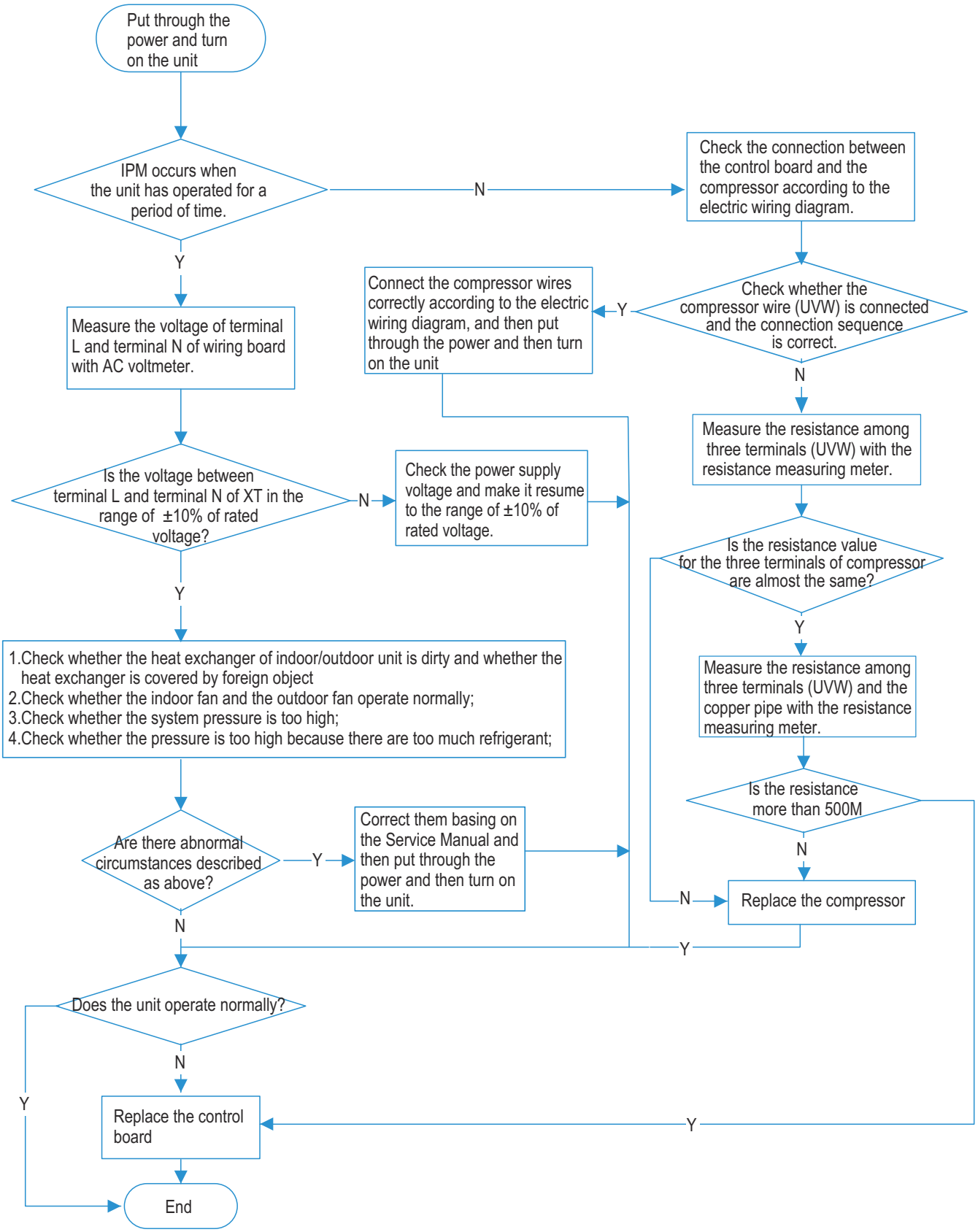
(1) Connection wire between indoor unit and outdoor unit
(2) Wiring inside the unit
(3) Communication circuit of control board of indoor unit
(4) Communication circuit of control board of outdoor unit



3. IPM protection H5, over-phase current of compressor P5

Main check points:
(1) compressor COMP terminal (2) power supply voltage (3) compressor
(4) charging amount of refrigerant (5) air inlet and air outlet of indoor/outdoor unit

NOTE:The control board as below means the control board of outdoor unit.



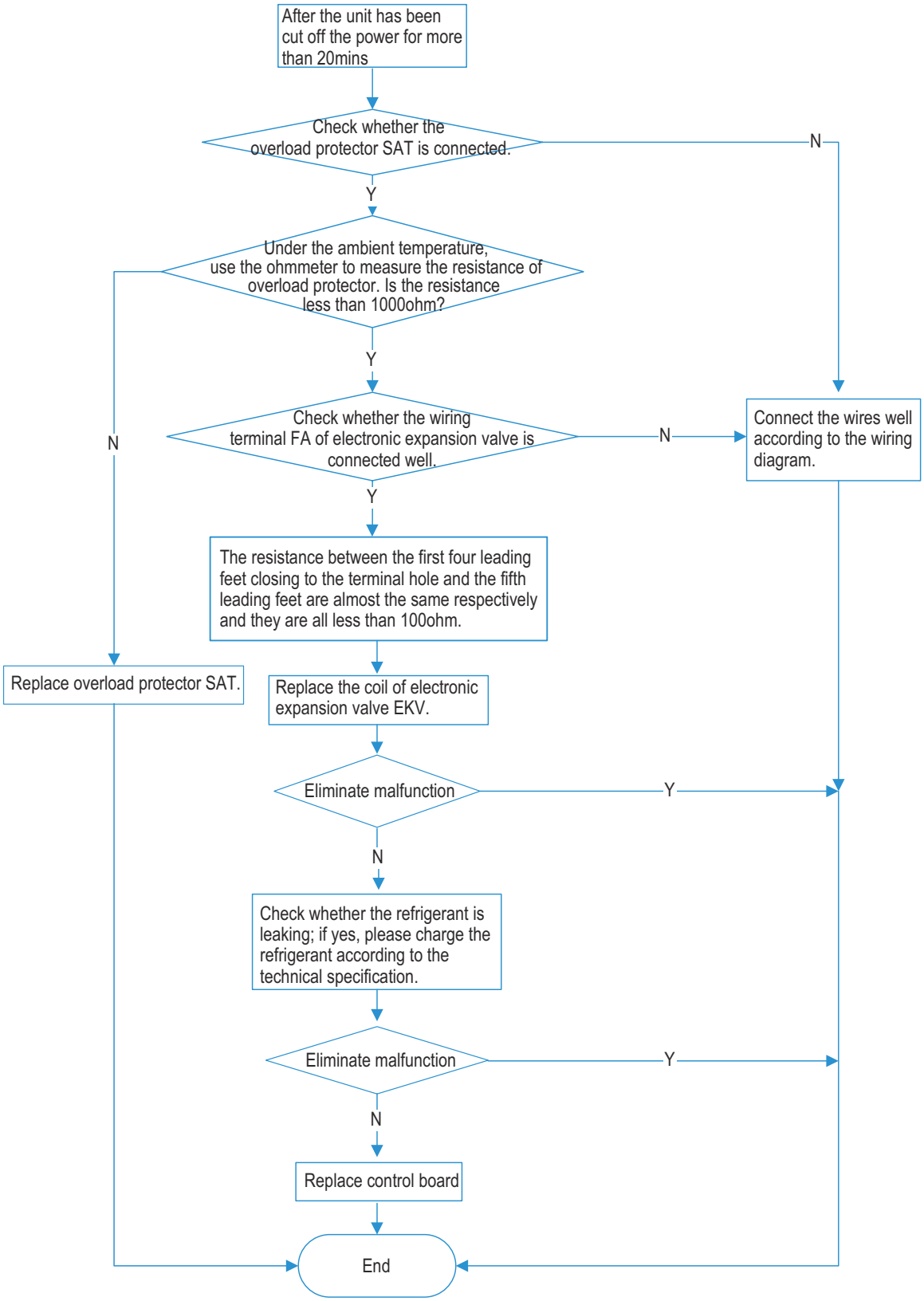
4. Overload protection of compressor H3, high discharge temperature, protection of compressor E4

Main check points:

(1) electronic expansion valve (2) expansion valve terminal

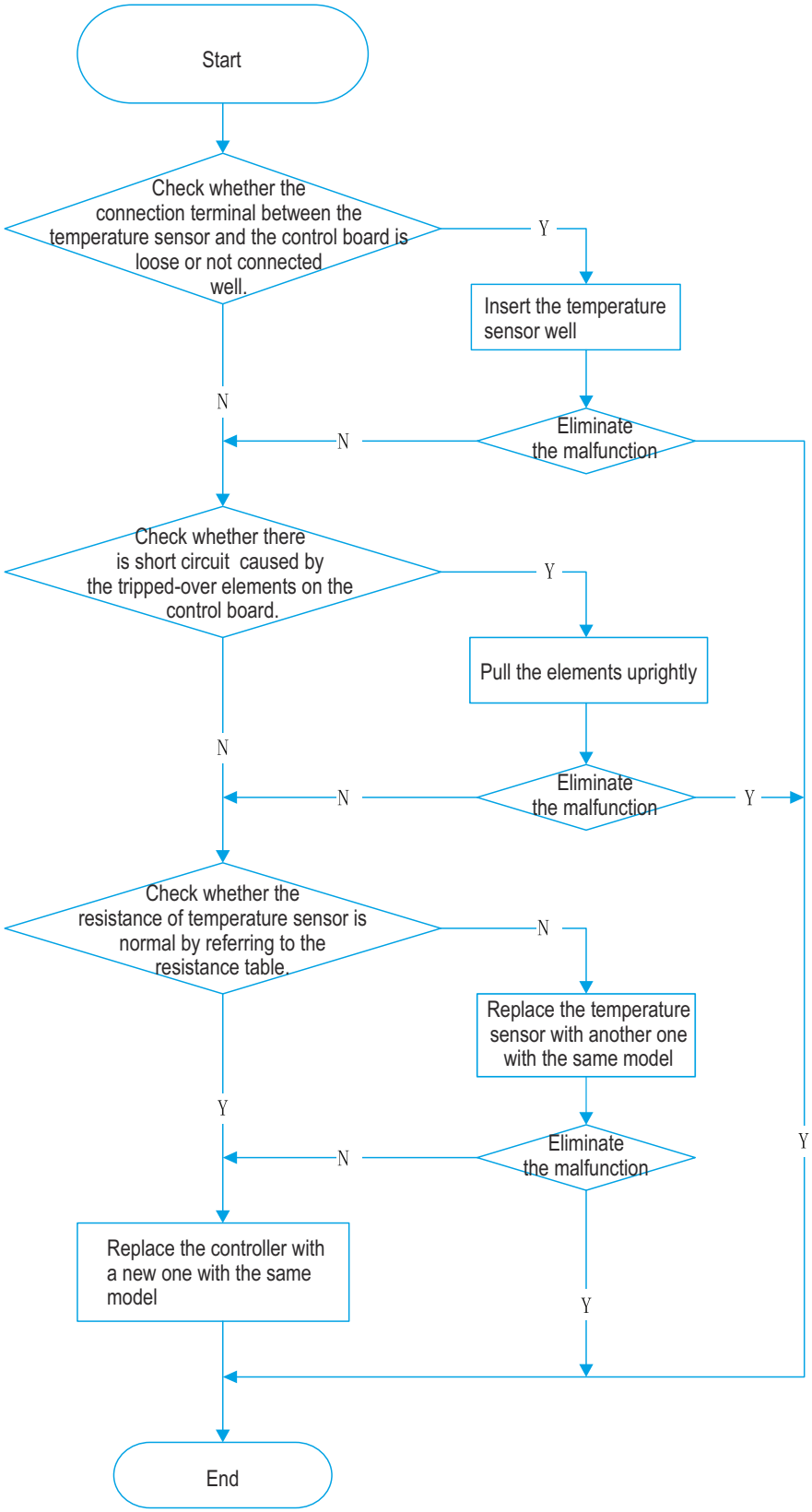
(3) charging amount of refrigerant (4) overload protector

NOTE:The control board as below means the control board of outdoor unit.



5.Troubleshooting for temperature sensor F1,F2,F3,F4,F5

Main check points:
(1) connection terminal (2) temperature sensor (3) main board

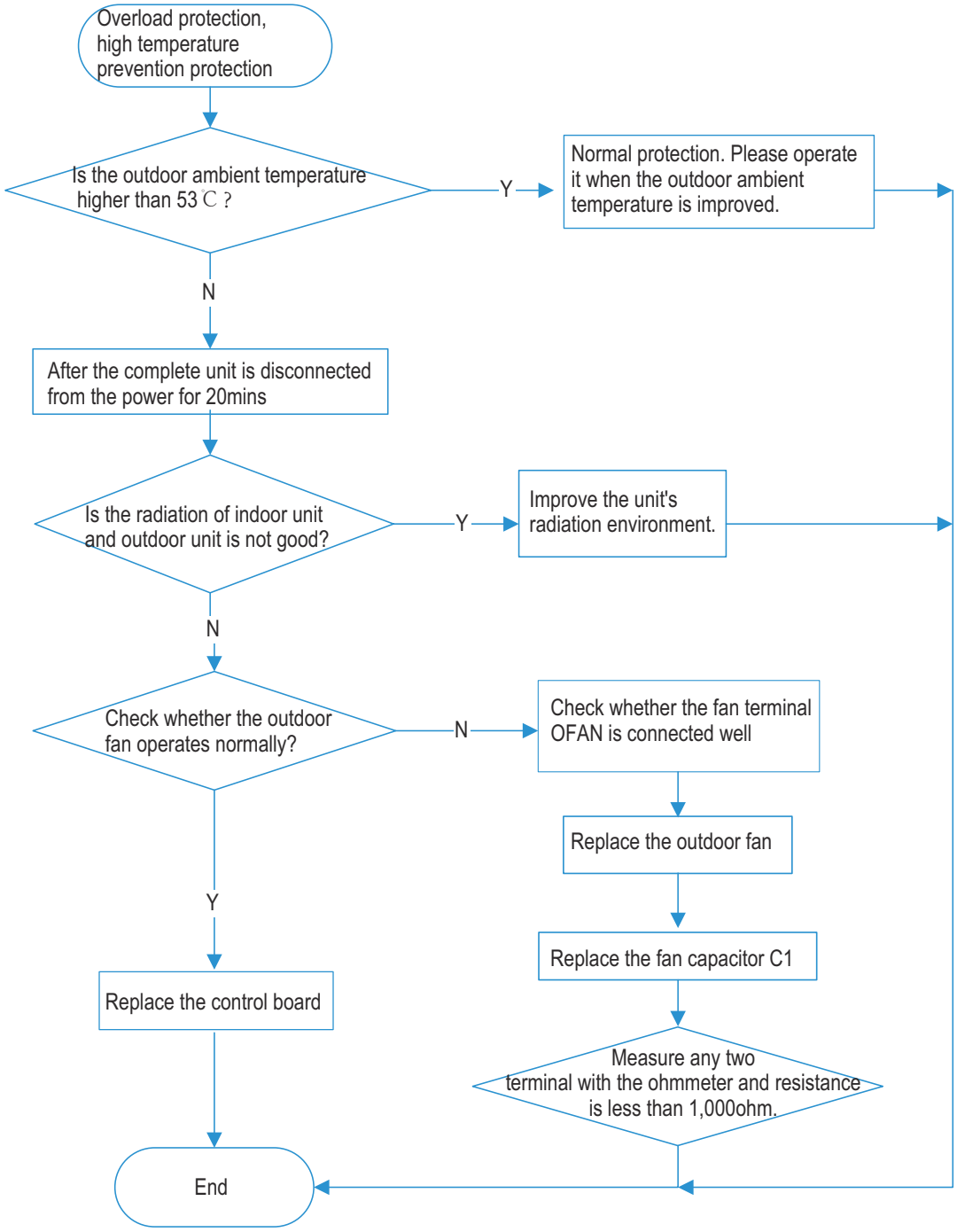


6.High temperature prevention protection E8; high power L9; system is abnormal H4

Main check points:

(1) outdoor temperature (2) fan (3)air inlet and air outlet of indoor/outdoor unit

NOTE:The control board as below means the control board of outdoor unit.

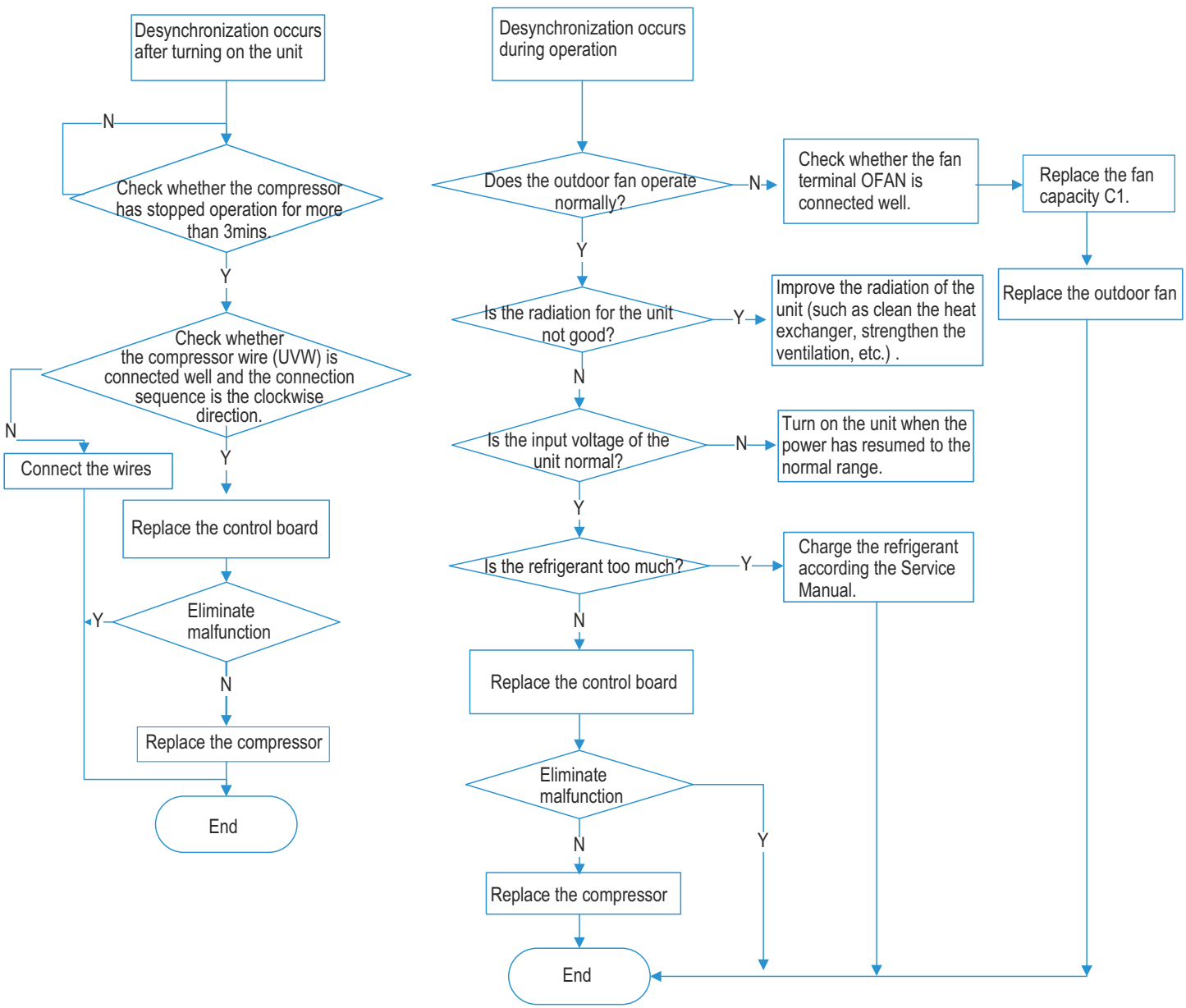


7.Desynchronization diagnosis for compressor H7

Main check point:

(1) system pressure (2) power supply voltage

NOTE:The control board as below means the control board of outdoor unit.

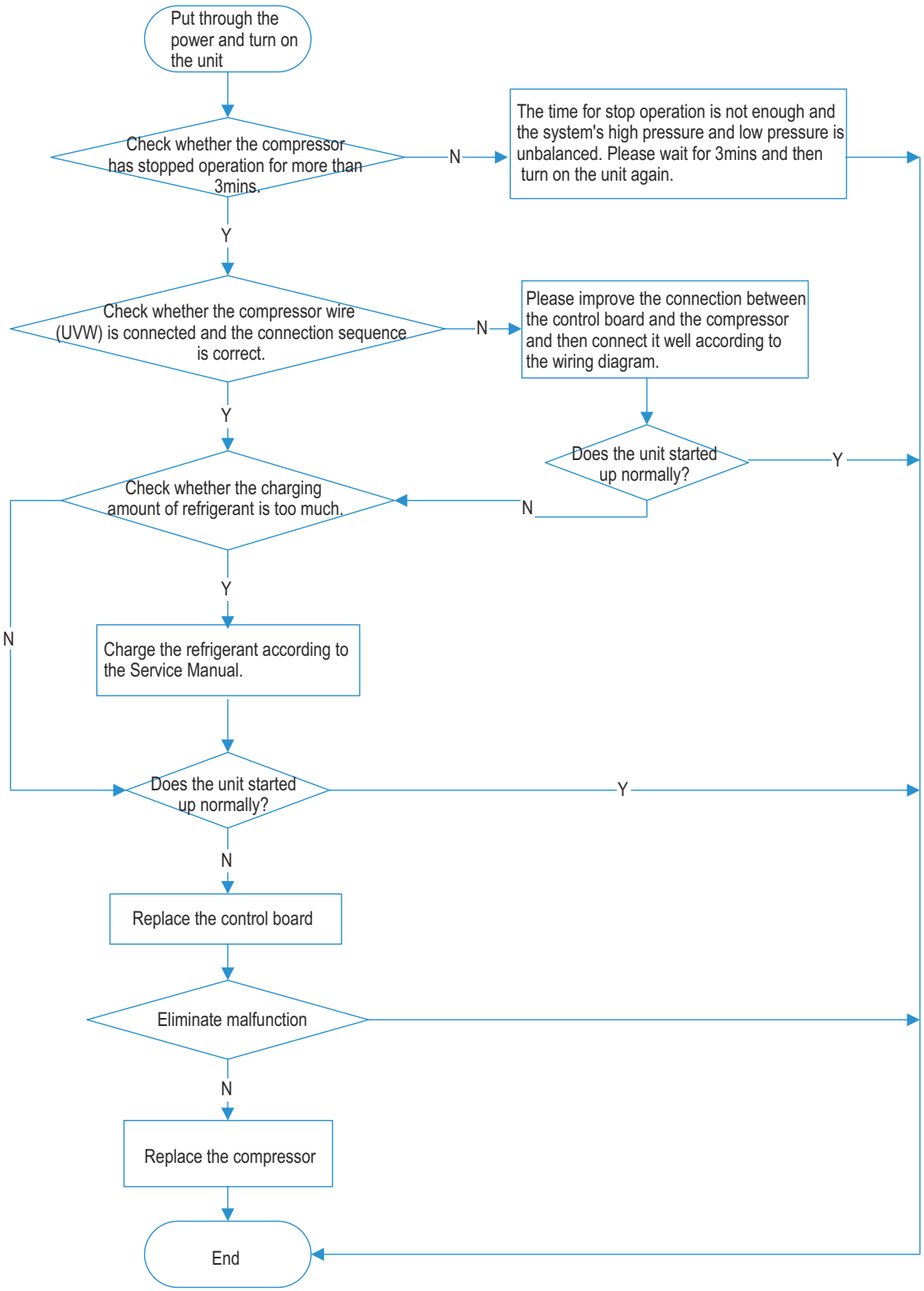


8.Malfunction diagnosis for failure startup Lc

Main check points:

(1) compressor wire (2) compressor (3) charging amount of refrigerant

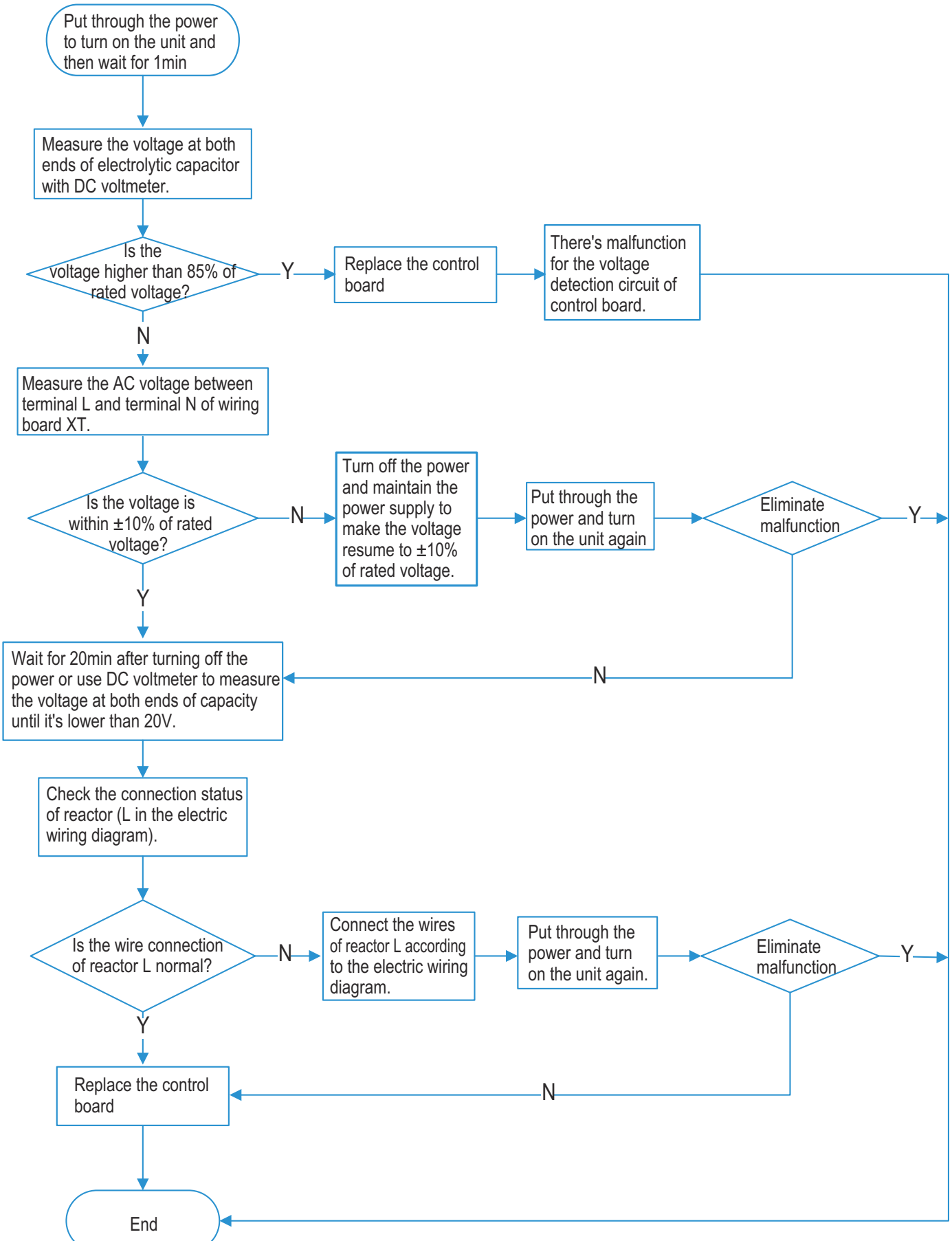
NOTE:The control board as below means the control board of outdoor unit.



9. Charging malfunction of capacitor PU

Main check points:
(1) wiring board XT (2) reactor

NOTE:The control board as below means the control board of outdoor unit.

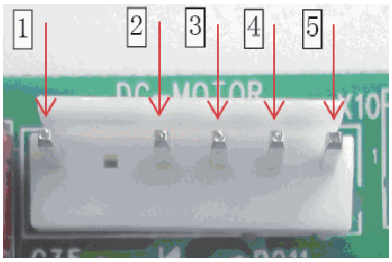


10. Troubleshooting-motor(indoor fan) doesn't operate H6

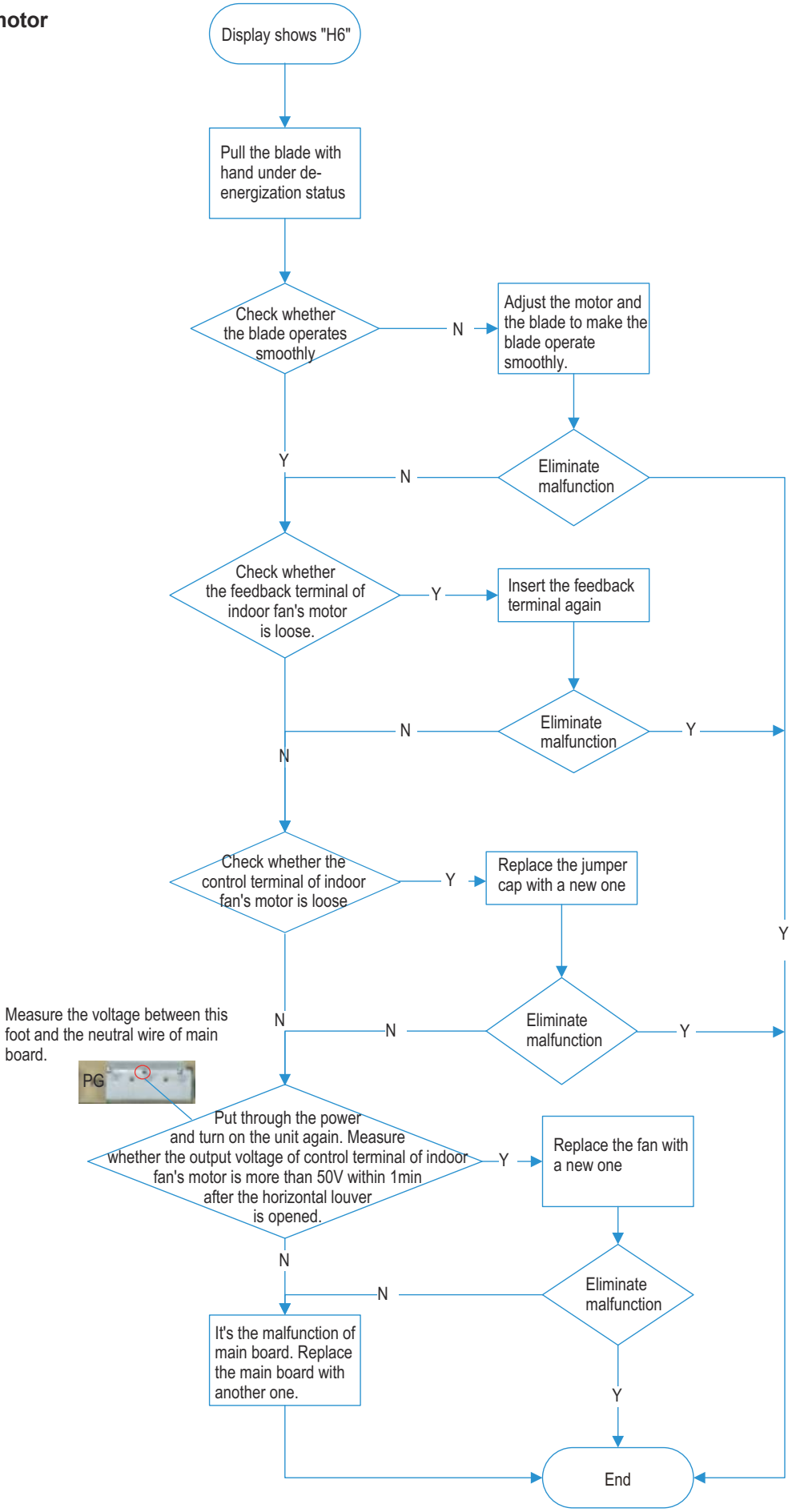
Main check points:

(1) connection terminal (2) motor (3) control board AP1 of indoor unit (4) blade

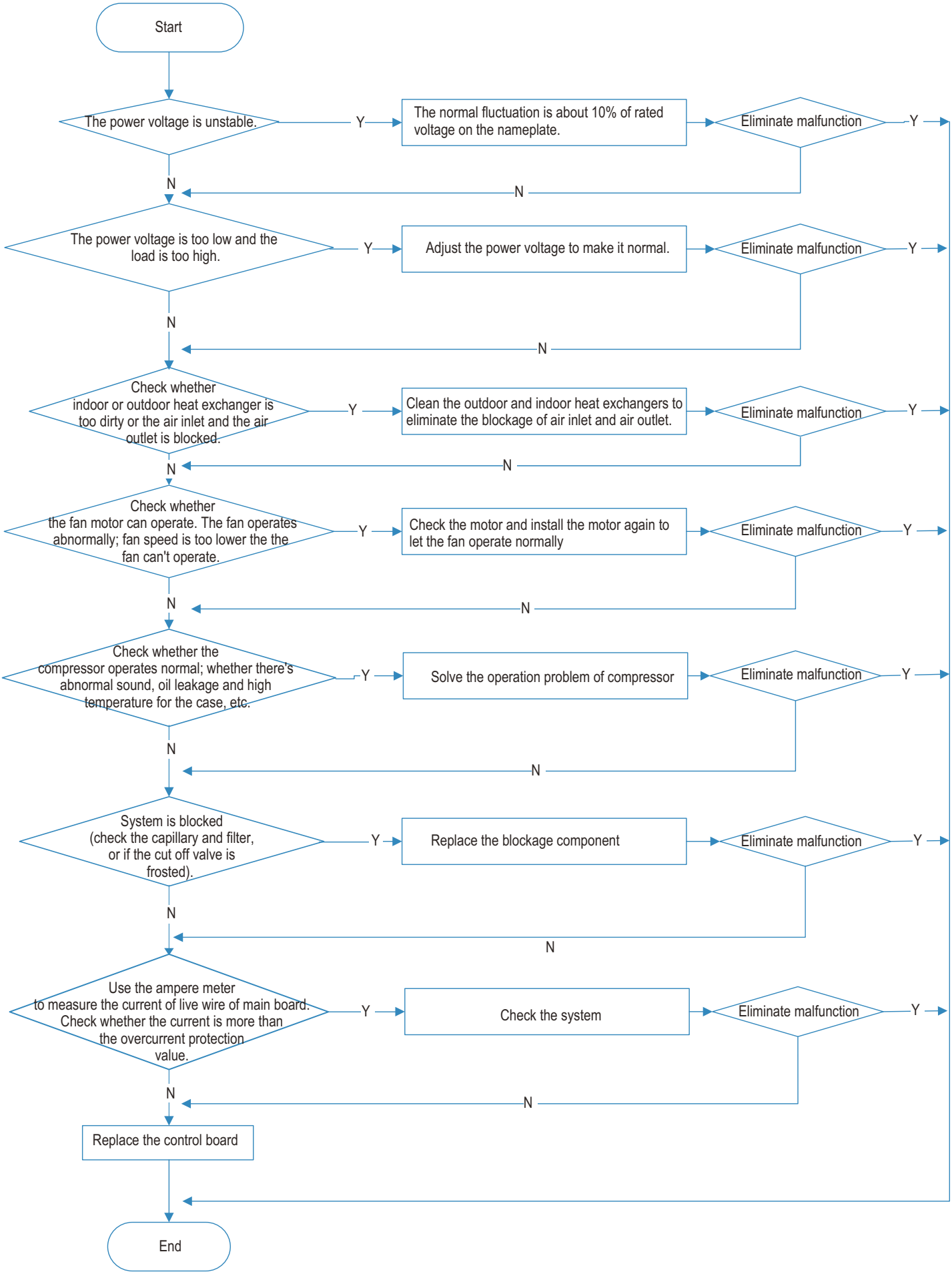
10.1 DC motor



10.2 PG motor


Display shows "H6"
Pull the blade with hand under de-energization status
Check whether the blade operates smoothly
N
Adjust the motor and the blade to make the blade operate smoothly.
Y
N
Eliminate malfunction
Check whether the feedback terminal of indoor fan's motor is loose.
Y
Insert the feedback terminal again
N
Eliminate malfunction
Y
N
Check whether the control terminal of indoor fan's motor is loose
Y
Replace the jumper cap with a new one
Y
Measure the voltage between this foot and the neutral wire of main board.
PG
N
N
Eliminate malfunction
Y
Put through the power and turn on the unit again. Measure whether the output voltage of control terminal of indoor fan's motor is more than 50V within 1min after the horizontal louver is opened.
Y
Replace the fan with a new one
N
N
Eliminate malfunction
It's the malfunction of main board. Replace the main board with another one.
Y
End

11. AC overcurrent protection E5



9.3 Troubleshooting for Normal Malfunction

1. Air Conditioner can't be Started Up

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
No power supply, or poor connection for power plug	After energization, operation indicator isn't bright and the buzzer can't give out sound	Confirm whether it's due to power failure. If yes, wait for power recovery. If not, check power supply circuit and make sure the power plug is connected well.
Wrong wire connection between indoor unit and outdoor unit, or poor connection for wiring terminals	Under normal power supply circumstances, operation indicator isn't bright after energization	Check the circuit according to circuit diagram and connect wires correctly. Make sure all wiring terminals are connected firmly
Electric leakage for air conditioner	After energization, room circuit breaker trips off at once	Make sure the air conditioner is grounded reliably Make sure wires of air conditioner is connected correctly Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord.
Model selection for air switch is improper	After energization, air switch trips off	Select proper air switch
Malfunction of remote controller	After energization, operation indicator is bright, while no display on remote controller or buttons have no action.	Replace batteries for remote controller Repair or replace remote controller

2. Poor Cooling (Heating) for Air Conditioner

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Set temperature is improper	Observe the set temperature on remote controller	Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	Small wind blow	Set the fan speed at high or medium
Filter of indoor unit is blocked	Check the filter to see its blocked	Clean the filter
Installation position for indoor unit and outdoor unit is improper	Check whether the installation postion is proper according to installation requirement for air conditioner	Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Units pressure is much lower than regulated range	Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	Blow cold wind during heating	Replace the 4-way valve
Malfunction of capillary	Discharged air temperature during cooling is higher than normal discharged wind temperature; Discharged air temperature during heating is lower than normal discharged wind temperature; Unitt pressure is much lower than regulated range. If refrigerant isn't leaking, part of capillary is blocked	Replace the capillary
Flow volume of valve is insufficient	The pressure of valves is much lower than that stated in the specification	Open the valve completely
Malfunction of horizontal louver	Horizontal louver can't swing	Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	The IDU fan motor can't operate	Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	The ODU fan motor can't operate	Refer to point 4 of maintenance method for details
Malfunction of compressor	Compressor can't operate	Refer to point 5 of maintenance method for details

3. Horizontal Louver can't Swing

Possible Causes	Discriminating Method (Air conditioner Status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Stepping motor is damaged	Stepping motor can't operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver can't operate	Replace the main board with the same model

4. ODU Fan Motor can't Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of the ODU fan motor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the capacity of fan
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Motor of outdoor unit is damaged	When unit is on, cooling/heating performance is bad and ODU compressor generates a lot of noise and heat.	Change compressor oil and refrigerant. If no better, replace the compressor with a new one

5. Compressor can't Operate

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Wrong wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of compressor is damaged	Measure the capacity of fan capacitor with an universal meter and find that the capacity is out of the deviation range indicated on the nameplate of fan capacitor.	Replace the compressor capacitor
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Coil of compressor is burnt out	Use universal meter to measure the resistance between compressor terminals and it's 0	Repair or replace compressor
Cylinder of compressor is blocked	Compressor can't operate	Repair or replace compressor

6. Air Conditioner is Leaking

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
Drain pipe is blocked	Water leaking from indoor unit	Eliminate the foreign objects inside the drain pipe
Drain pipe is broken	Water leaking from drain pipe	Replace drain pipe
Wrapping is not tight	Water leaking from the pipe connection place of indoor unit	Wrap it again and bundle it tightly

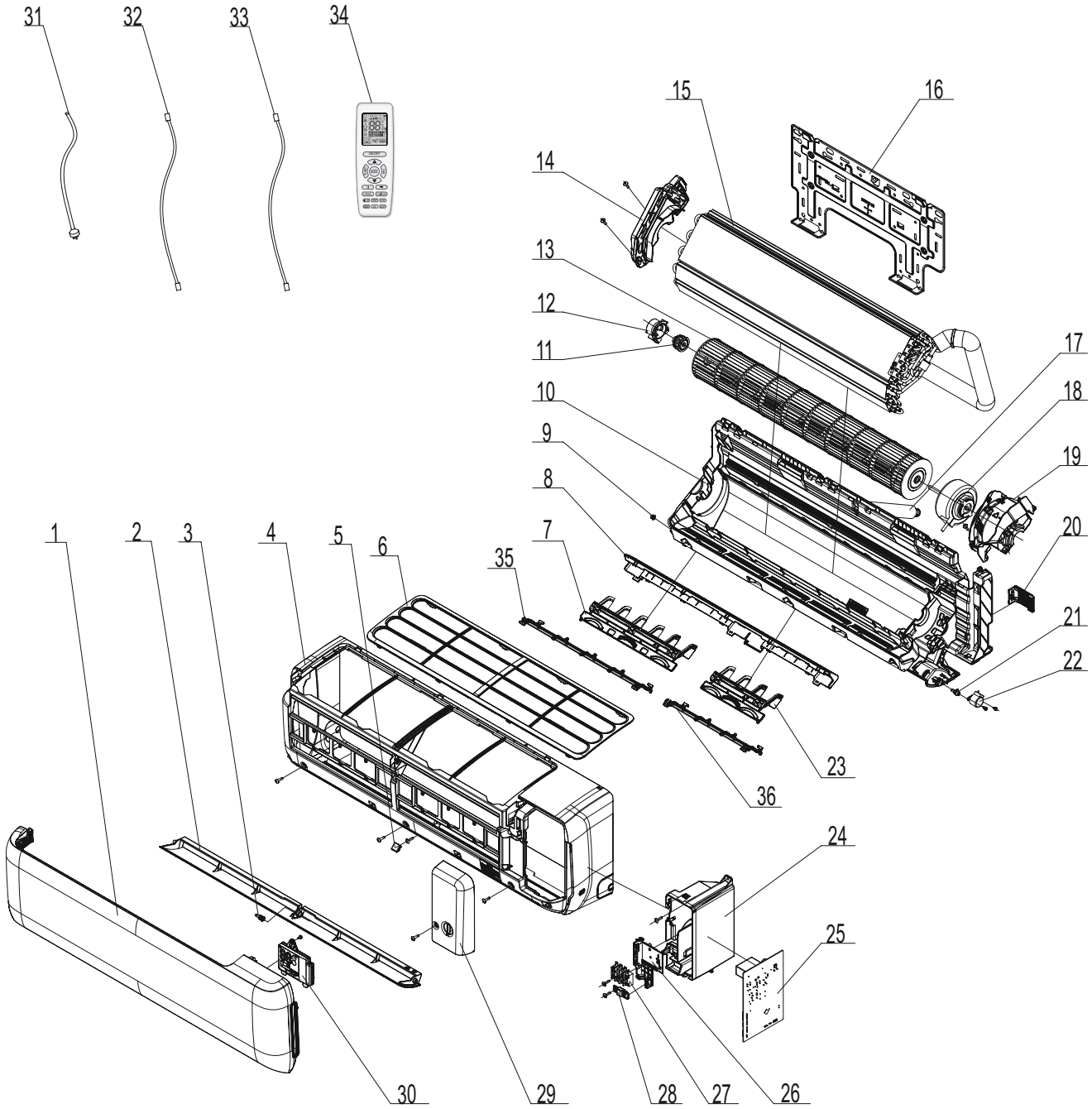
7. Abnormal Sound and Vibration

Possible causes	Discriminating method (air conditioner status)	Troubleshooting
When turn on or turn off the unit, the panel and other parts will expand and theres abnormal sound	Theres the sound of "PAPA"	Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off the unit, theres abnormal sound due to flow of refrigerant inside air conditioner	Water-running sound can be heard	Normal phenomenon. Abnormal sound will disappear after a few minutes.
Foreign objects inside the indoor unit or therere parts touching together inside the indoor unit	Theres abnormal sound fro indoor unit	Remove foreign objects. Adjust all parts position of indoor unit, tighten screws and stick damping plaster between connected parts
Foreign objects inside the outdoor unit or therere parts touching together inside the outdoor unit	Theres abnormal sound fro outdoor unit	Remove foreign objects. Adjust all parts position of outdoor unit, tighten screws and stick damping plaster between connected parts
Short circuit inside the magnetic coil	During heating, the way valve has abnormal electromagnetic sound	Replace magnetic coil
Abnormal shake of compressor	Outdoor unit gives out abnormal sound	Adjust the support foot mat of compressor, tighten the bolts
Abnormal sound inside the compressor	Abnormal sound inside the compressor	If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances.

10. Exploded View and Parts List

10.1 Indoor Unit

09/12K:



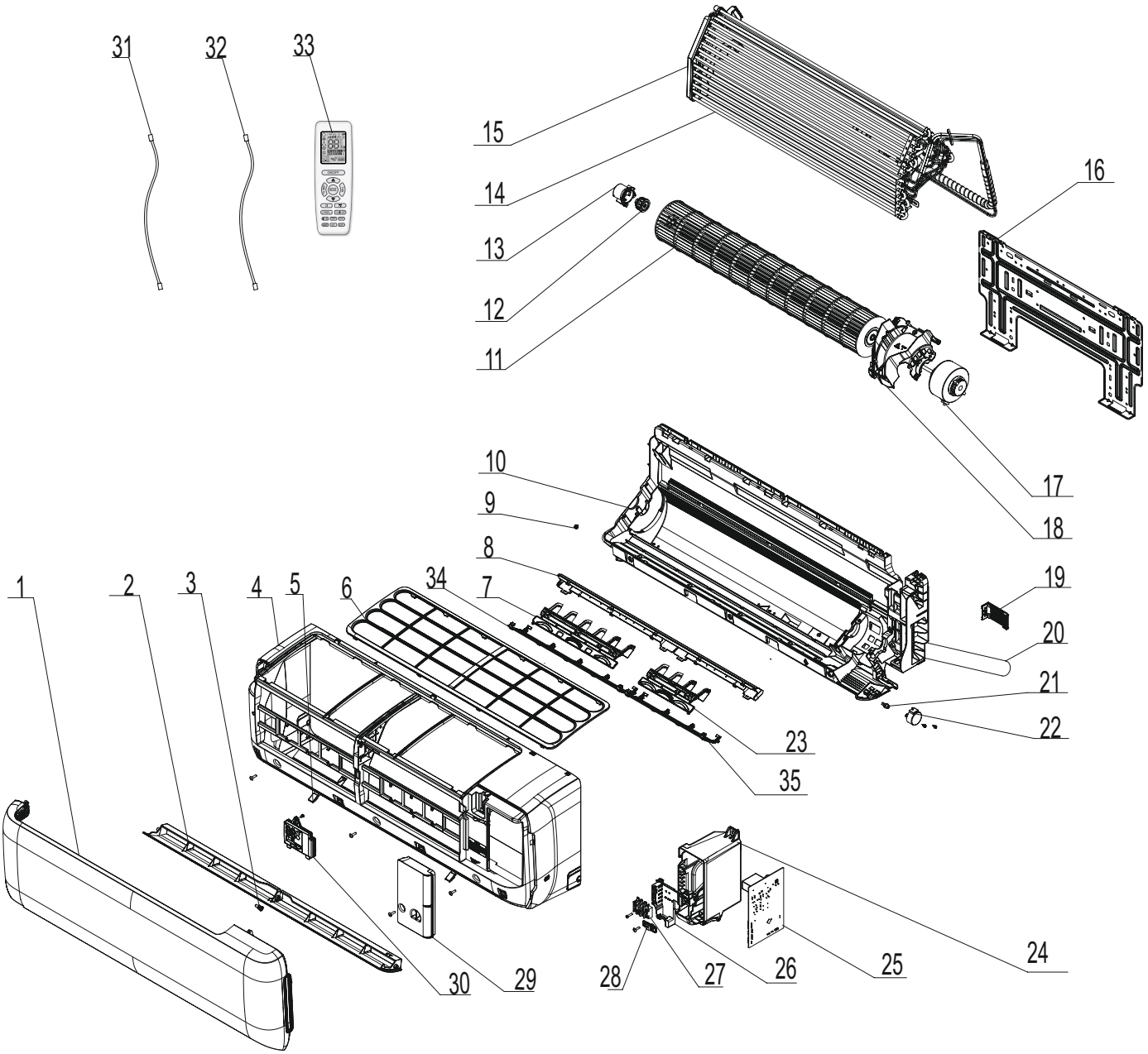
The component picture is only for reference; please refer to the actual product.

NO.	Description
1	Front Panel
2	Guide Louver
3	Axile Bush
4	Front Case
5	Screw Cover
6	Filter Sub-Assy
7	Air Louver (left)
8	Helicoid Tongue
9	Left Axile Bush
10	Rear Case Sub-Assy
11	O-Gasket sub-assy of Bearing
12	Ring of Bearing
13	Cross Flow Fan
14	Evaporator Support
15	Evaporator Assy
16	Wall Mounting Frame
17	Drainage Hose
18	Fan Motor

NO.	Description
19	Motor Press Plate
20	Connecting pipe clamp
21	Crank
22	Stepping Motor
23	Air Louver(right)
24	Electric Box Assy
25	Main Board
26	Supporter(Electric Box)
27	Terminal Board
28	Cable Clamp
29	Electric Box Cover
30	Display Board
31	Power Cord
32	Connecting Cable
33	Connecting Cable
34	Remote Controller
35	Rear Grill Sub-assy
36	Rear Grill Sub-assy

Some models may not contain some parts, please refer to the actual product.

18K:



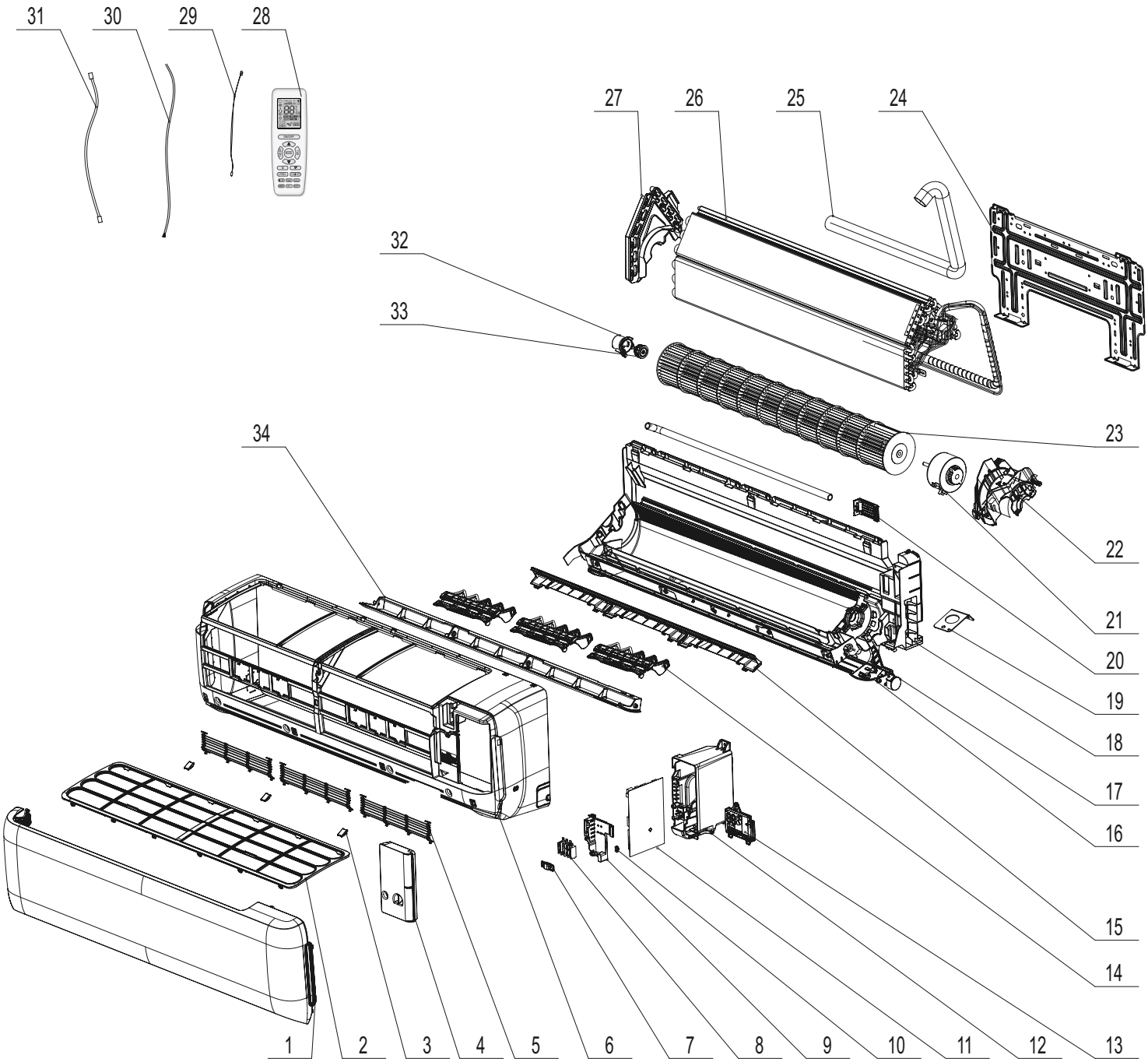
The component picture is only for reference; please refer to the actual product.

NO.	Description
1	Front Panel
2	Guide Louver
3	Axile Bush
4	Front Case
5	Screw Cover
6	Filter Sub-Assy
7	Air Louver (left)
8	Helicoid Tongue
9	Left Axile Bush
10	Rear Case Sub-Assy
11	Cross Flow Fan
12	Ring of Bearing
13	O-Gasket sub-assy of Bearing
14	Evaporator Assy
15	Evaporator Support
16	Wall Mounting Frame
17	Fan Motor
18	Motor Press Plate

NO.	Description
19	Connecting pipe Clamp
20	Drainage Hose
21	Crank
22	Stepping Motor
23	Air Louver(right)
24	Electric Box Assy
25	Main Board
26	Supporter(Electric Box)
27	Terminal Board
28	Cable Clamp
29	Electric Box Cover
30	Display Board
31	Power Cord
32	Connecting Cable
33	Connecting Cable
34	Remote Controller
35	Rear Grill Sub-assy 2
36	Rear Grill Sub-assy 1

Some models may not contain some parts, please refer to the actual product.

24K:



The component picture is only for reference; please refer to the actual product.

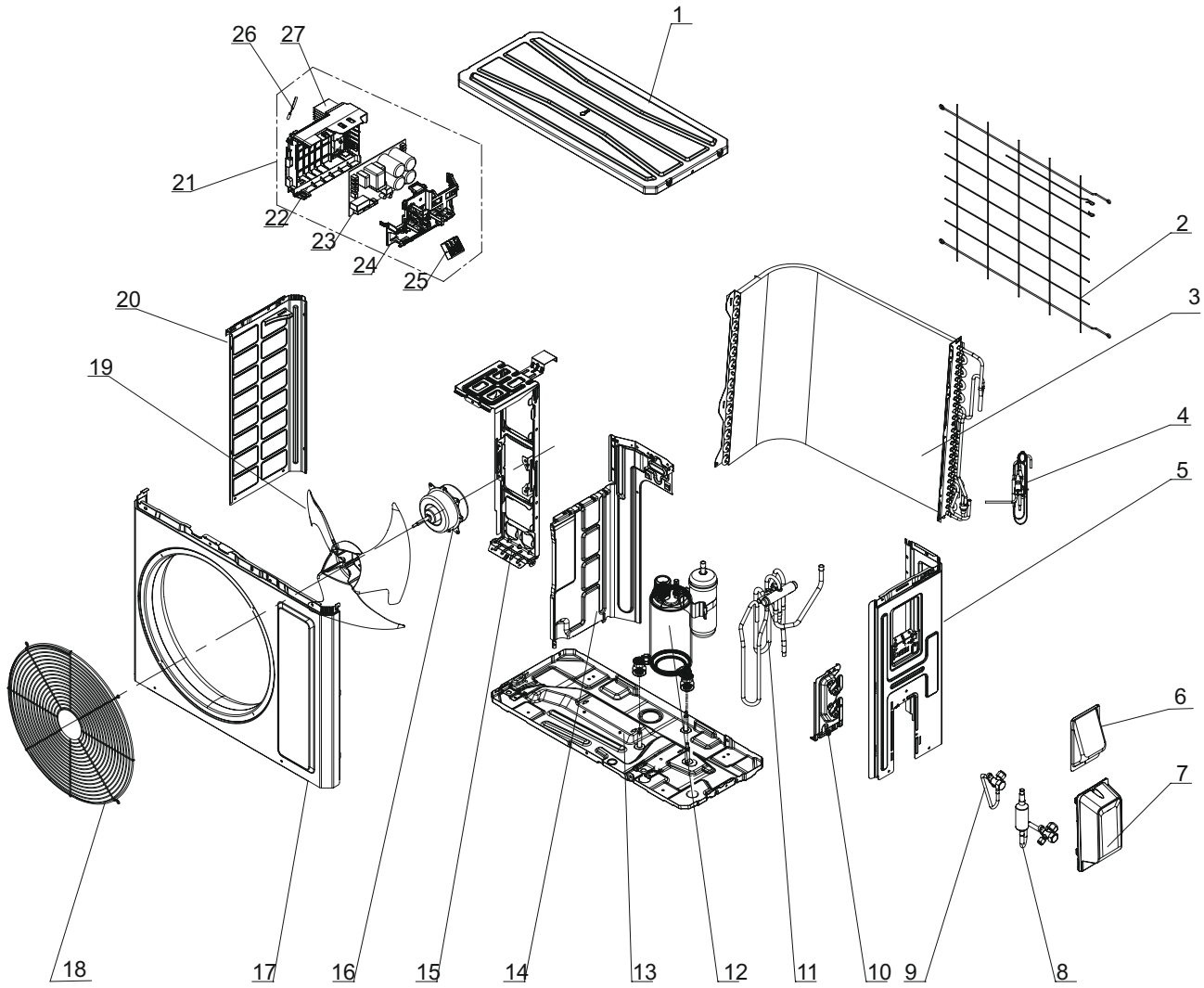
NO.	Description
1	Front Panel
2	Filter Sub-Assy
3	Screw Cover
4	Electric Box Cover
5	Rear Grill Sub-assy
6	Front Case
7	Cable Clamp 2
8	Terminal Board
9	Supporter
10	Jumper
11	Main Board
12	Electric Box
13	Display Board
14	Air Louver
15	Helicoid Tongue
16	Crank
17	Stepping Motor

NO.	Description
18	Rear Case
19	Cable Cross Plate
20	Connecting pipe clamp
21	Fan Motor
22	Motor Press Plate
23	Cross Flow Fan
24	Wall Mounting Frame
25	Heat Insulating Hose
26	Evaporator Assy
27	Evaporator Support
28	Remote Controller
29	Temperature Sensor
30	Connecting Cable
31	Connecting Cable
32	O-Gasket sub-assy of Bearing
33	Ring of Bearing
34	Guide Louver

Some models may not contain some parts, please refer to the actual product.

10.2 Outdoor Unit

TW09HXCA5AO TW09HXCA5DO TW09CXCA5DO TW12HXCA5AO TW12HXCA5DO



The component picture is only for reference; please refer to the actual product.

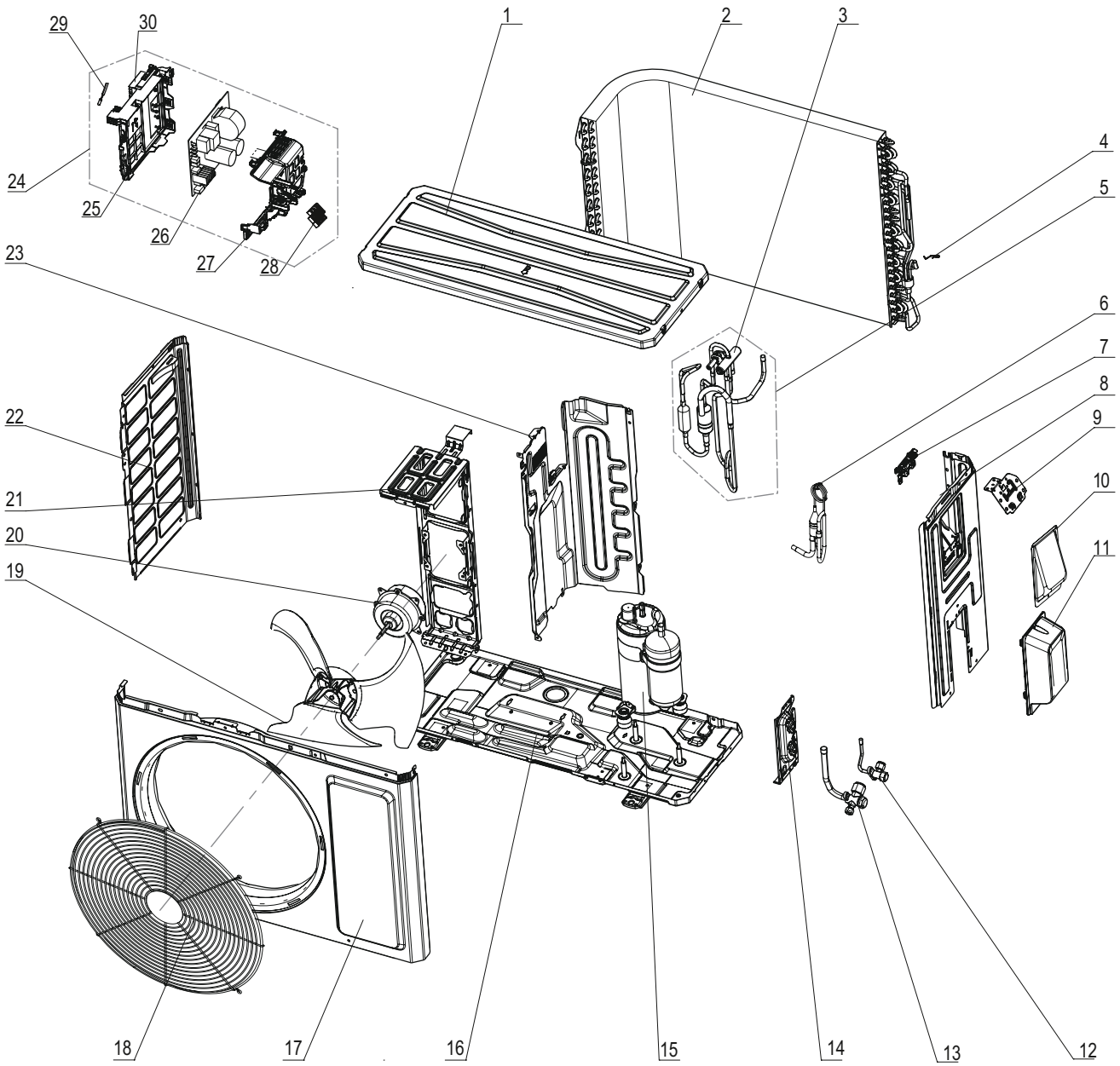
NO.	Description
1	Coping
2	Rear Grill
3	Condenser Assy
4	Capillary Sub-Assy
5	Right Side Plate
6	Cover of Pass Wire
7	Valve Cover
8	Cut-off valve Sub-Assy
9	Cut-off valve

NO.	Description
10	Valve Support
11	4-way valve assy
12	Compressor and Fittings
13	Chassis Sub-Assy
14	Clapboard
15	Motor Support
16	Brushless DC Motor
17	Cabinet
18	Front Grill

NO.	Description
19	Axial Flow Fan
20	Left Side Plate
21	Electric Box Assy
22	Electric Box
23	Main Board
24	Electric Box Cover
25	Terminal Board
26	Temperatue Sensor
27	Radiator

Some models may not contain some parts, please refer to the actual product.

TW18HXCA5DO



The component is only for rererence;please refer to the actual product

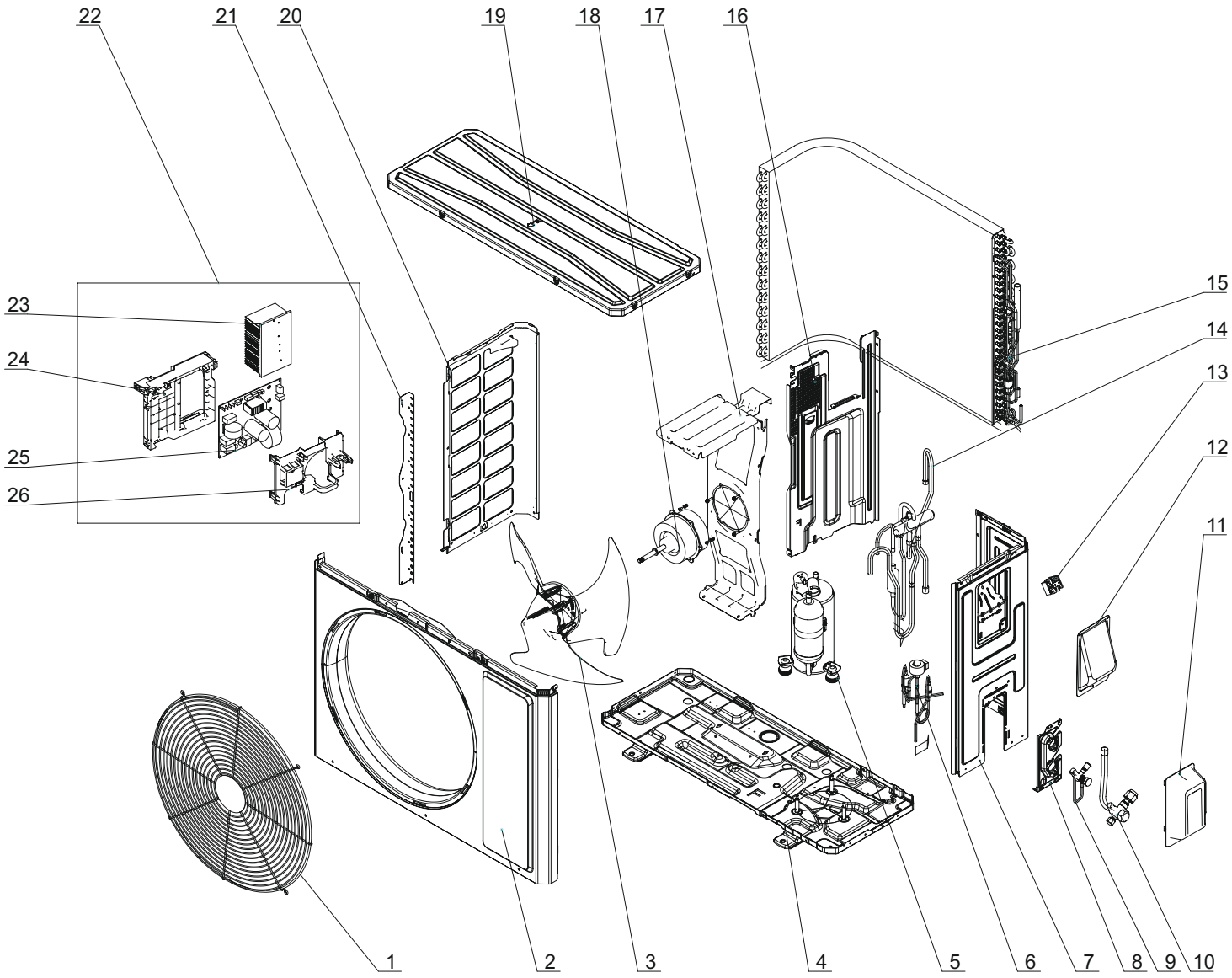
NO.	Description
1	Top Cover Assy
2	Condenser Assy
3	4-Way Valve
4	Tempreture Sensor clamp
5	4-Way Valve Assy
6	Capillary Sub-assy
7	Wire Clamp
8	Right Side Plate
9	Earthing Plate Sub-assy
10	Cover of Pass Wire

NO.	Description
11	Valve Cover
12	Cut-off valve 1/4(N)
13	Cut-off valve 1/2(N)
14	Valve Support
15	Compressor and Fittings
16	Chassis Sub-assy
17	Cabinet
18	Front Grill
19	Axial Flow Fan
20	Brushless DC Motor

NO.	Description
21	Motor Support
22	Left Side Plate
23	Clapboard Assy
24	Electric Box Assy
25	Electric Box
26	Main Board
27	Electric Box Cover
28	Terminal Board
29	Temperature Sensor
30	Radiator

Some models may not contain some parts, please refer to the actual product.

TW24HXCA5DO



The component is only for rererence;please refer to the actual product

NO.	Description
1	Front Grill
2	Front Panel
3	Axial Flow Fan
4	Chassis Sub-assy
5	Compressor and Fittings
6	Electronic Expansion Valve
7	Right Side Plate
8	Valve Support
9	Cut-off valve 1/4(N)
10	Cut-off valve 5/8(N)
11	Valve Cover
12	Cover of Pass Wire
13	Terminal Board

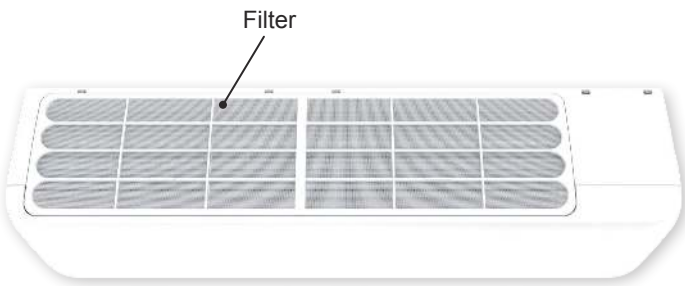
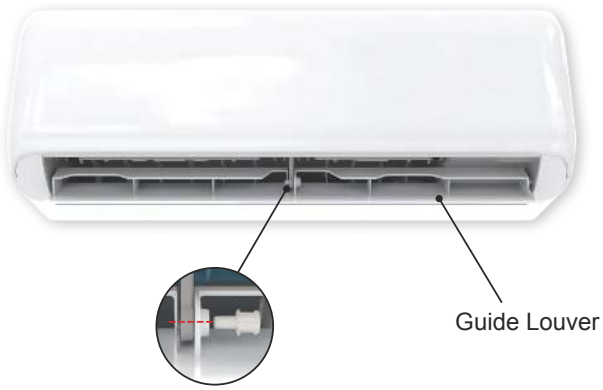
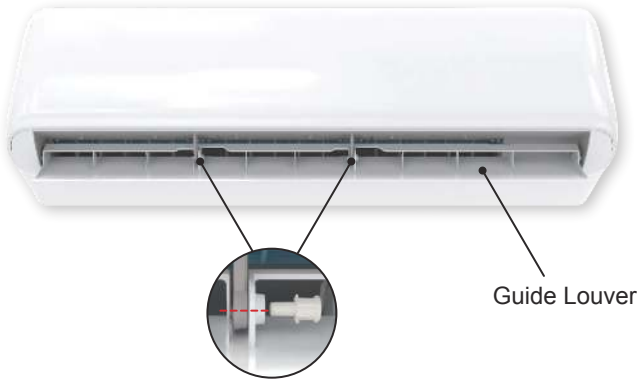
NO.	Description
14	4-Way Valve Assy
15	Condenser Assy
16	Clapboard Assy
17	Motor Support
18	Motor
19	Top Cover Assy
20	Left Side Plate
21	Condenser Left Border Plate
22	Electric Box Assy
23	Radiator
24	Electric Box
25	Main Board
26	Electric Box Cover

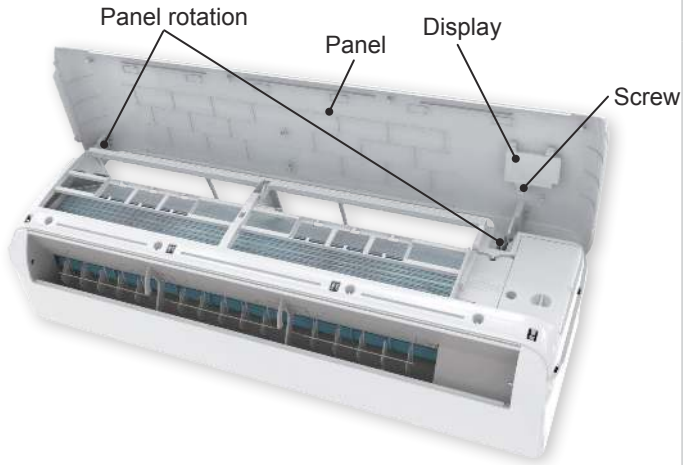
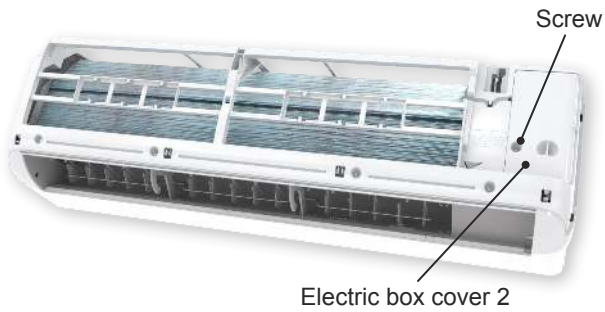
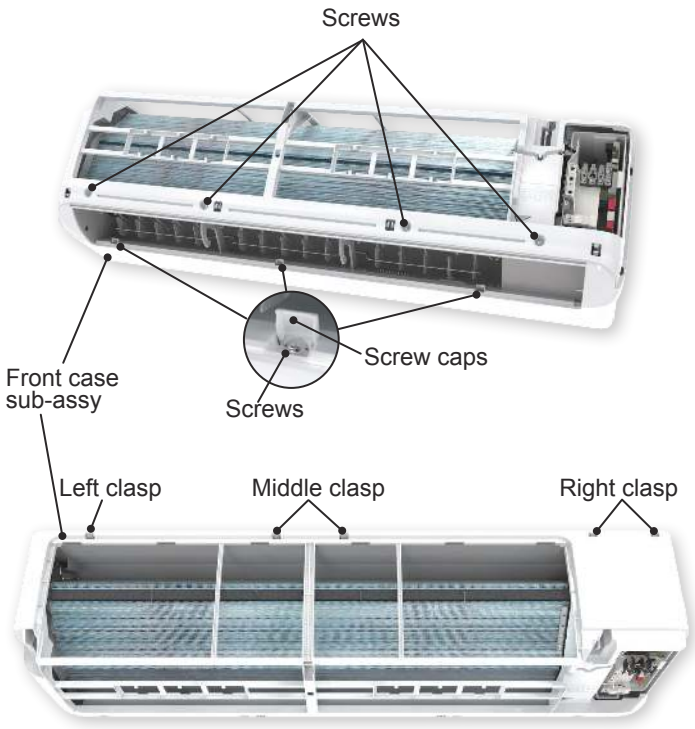
Some models may not contain some parts, please refer to the actual product.

11. Removal Procedure

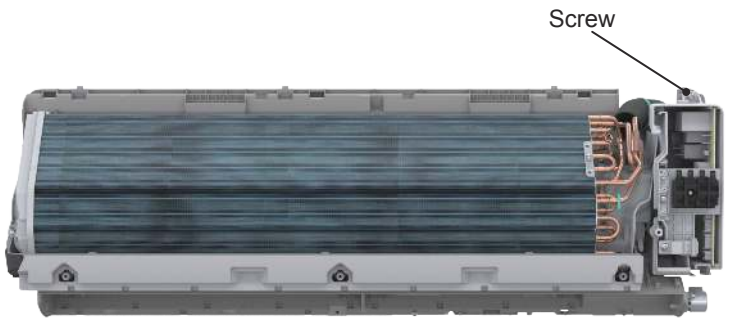
11.1 Removal Procedure of Indoor Unit

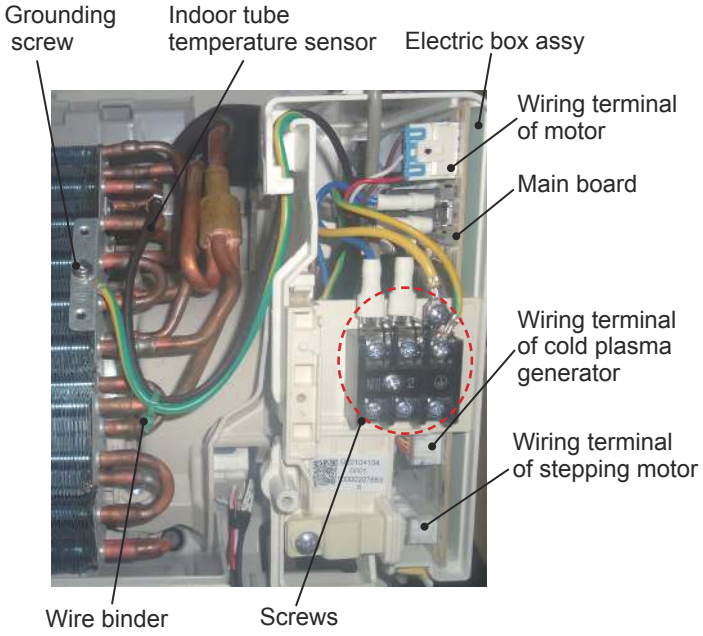
⚠ **Caution: discharge the refrigerant completely before removal.**

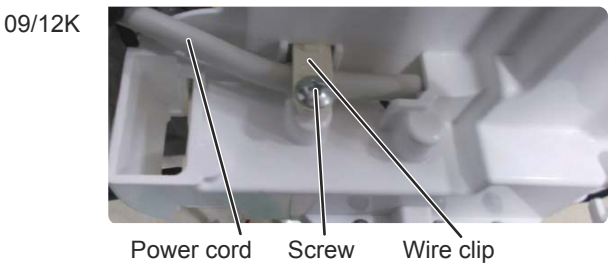
Step	Procedure
Before disassemble	
	Turn off the air conditioner and disconnect the power before disassemble the air conditioner.
	
1. Remove filter	
	Hold the handle on the filter, pull it upwards to let the clasp at the top part of the filter loose, push it forwards and then the filter can be pulled out.
	
2. Remove guide louver	
	Push out the plug pin on guide louver, bend the guide louver with hand and then separate the guide louver from the crank shaft of step motor to remove it.
	09/12K:  18/24K: 

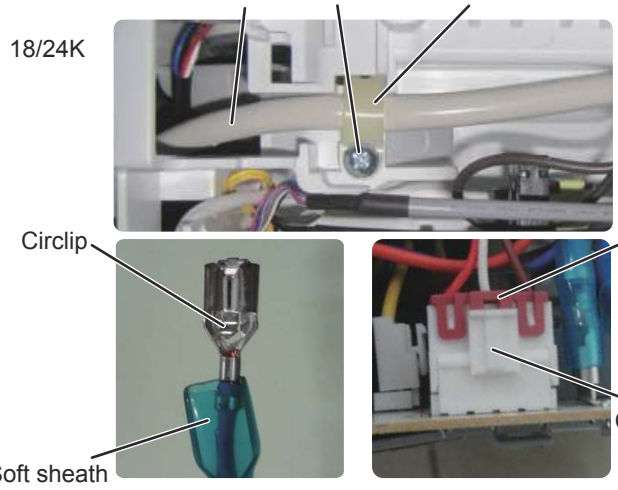
Step	Procedure	
3. Remove panel		
	Open the front panel; separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel. Note: The display of some models is fixed on the panel; unscrew the screws fixing the display on the panel before removing the panel.	
4. Remove electric box cover 2		
	Remove the screws on the electric box cover 2 to remove the electric box cover 2.	
5. Remove front case sub-assy		
a	Remove the screws fixing front case. Note: (1) Open the screw caps before removing the screws around the air outlet. (2) The quantity of screws fixing the front case sub-assy is different for different models.	
b	Loosen the clasps at left, middle and right sides of front case. Life the front case sub-assy upwards to remove it.	

Step	Procedure
6. Remove electric box assy	
a	Remove the screw fixing electric box assy.
b	① Cut off the wire binder and pull out the indoor tube temperature sensor. ② Screw off one grounding screw. ③ Remove the wiring terminals of motor, cold plasma generator and stepping motor. ④ Remove the electric box assy. ⑤ Screw off the screws that are locking each.
c	Rotate the electric box assy. Twist off the screws that are locking the wire clip and loosen the power cord. Remove the wiring terminal of power cord. Lift up the main board and take it off. NOTE: This step is only available for the indoor power supply unit. Instruction:Some wiring terminal of this products is with lock catch and other devices.The pulling method is as below: 1.Remove the soft sheath for some terminals at first, hold the circlip and then pull out the terminals, 2.Pull out the holder for some terminals at first(holder is not available for some wiring terminal).hold the connector and then pull the terminal.



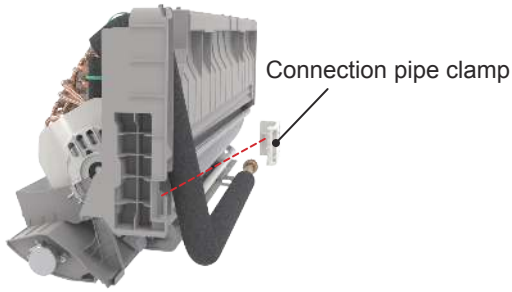


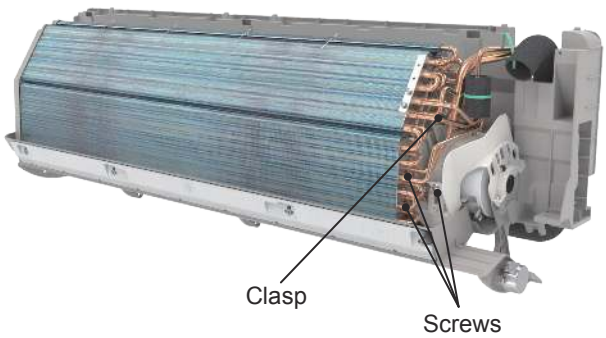


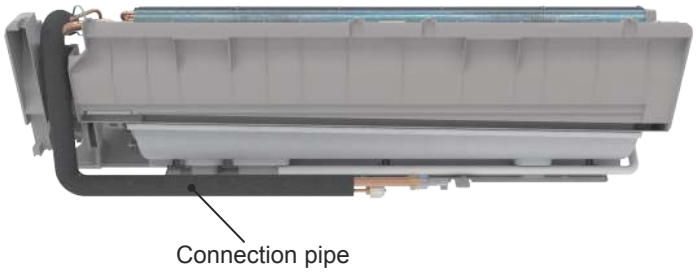


Step	Procedure
7. Remove evaporator assy	
a	Remove 2 screws fixing evaporator assy.
b	At the back of the unit, Loosen the clasp of the connection pipe clamp and then remove the connection pipe clamp.
c	First remove 3 screws fixing evaporator assy and motor press plate.And then remove the left side of evaporator from the groove of bottom shell. At the last, remove the right side from the clasp on the bottom shell.
d	Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it.



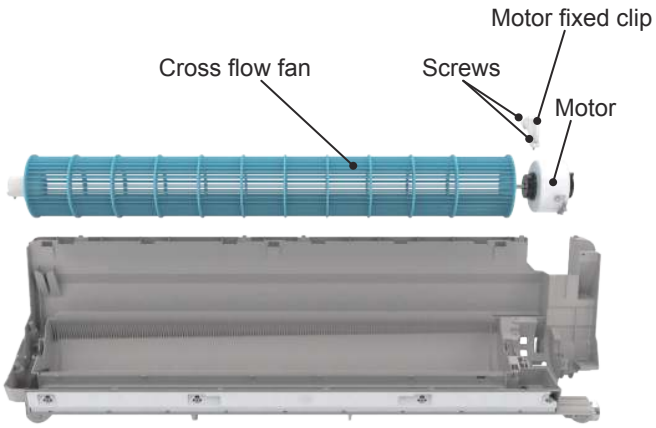






Step	Procedure
8. Remove motor and cross flow fan	
a	Remove 3 screws fixing motor clamp and then remove the motor clamp.
b	Remove 2 screws fixing motor fixed clip and then remove motor fixed clip, cross flow fan and motor.
9. Remove swing motor	
	Screw off the screw that are locking the swing motor and take the motor off.







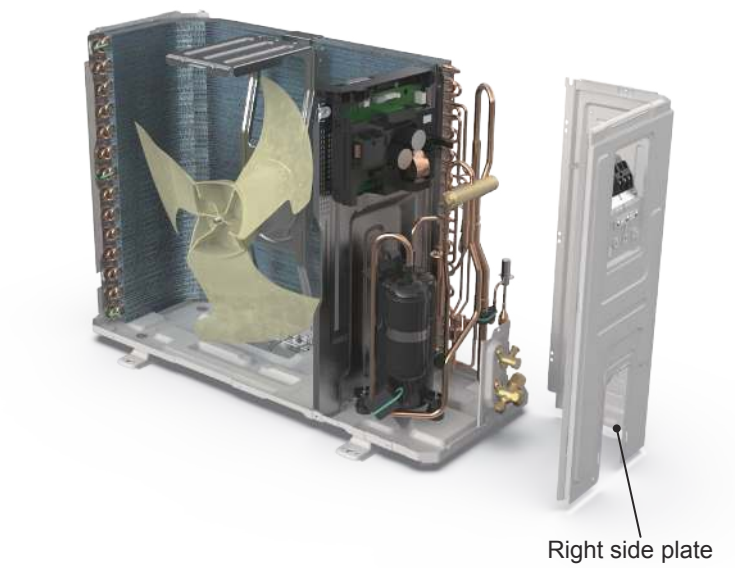
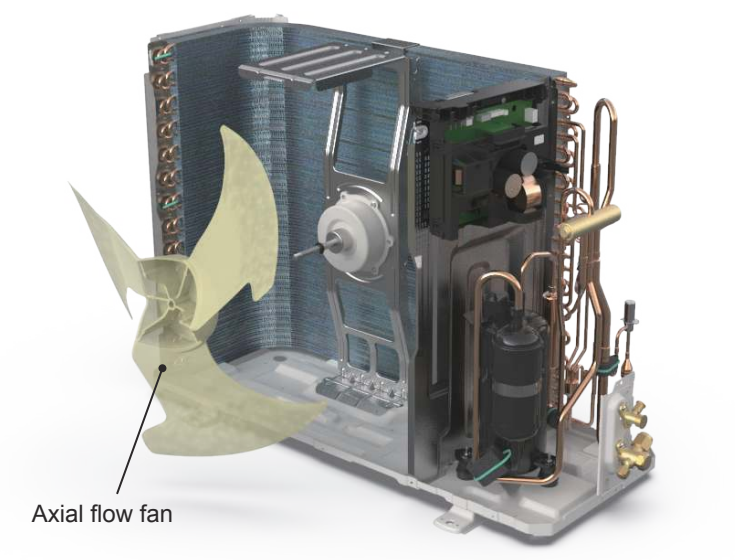
11.2 Removal Procedure of Outdoor Unit

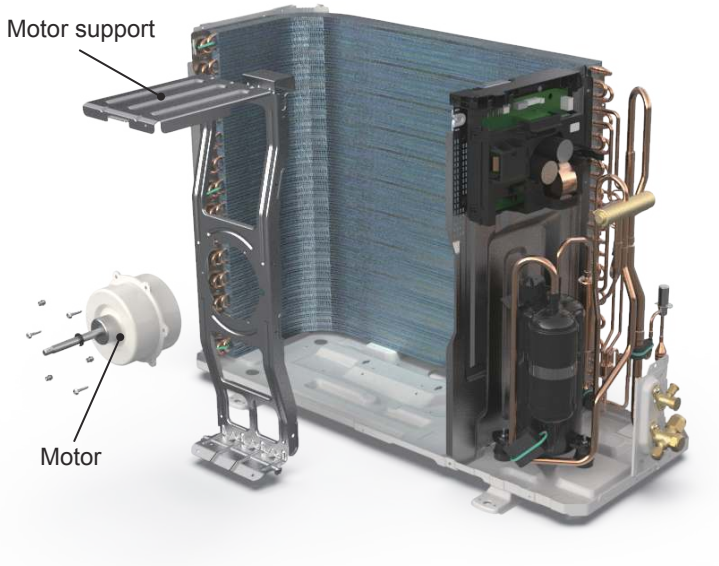
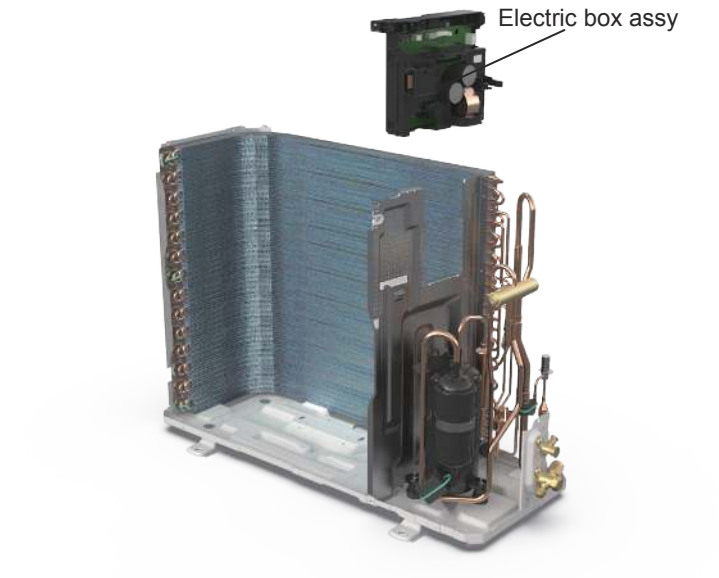
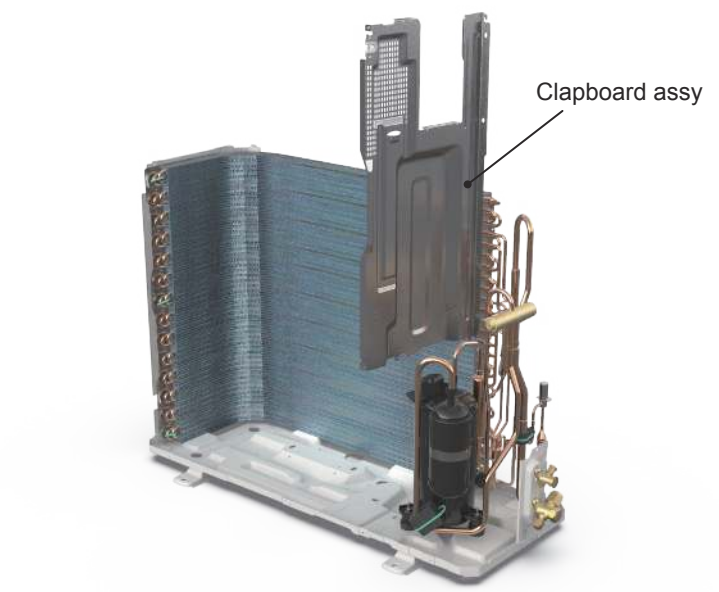
24K

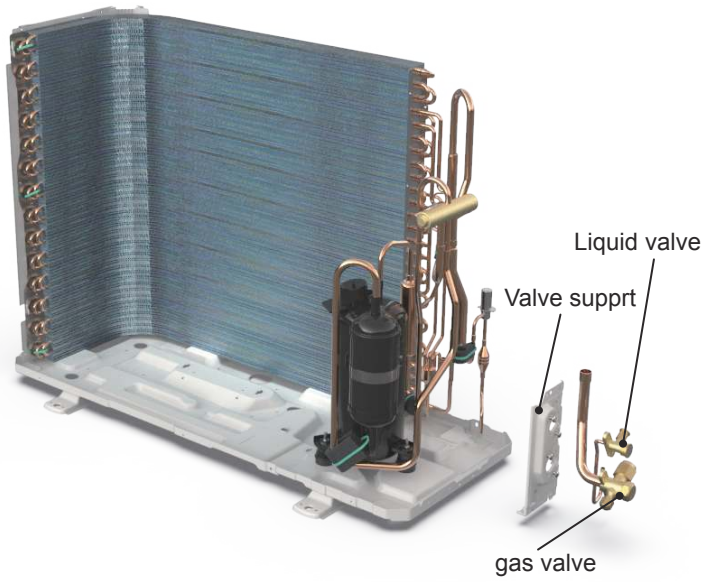
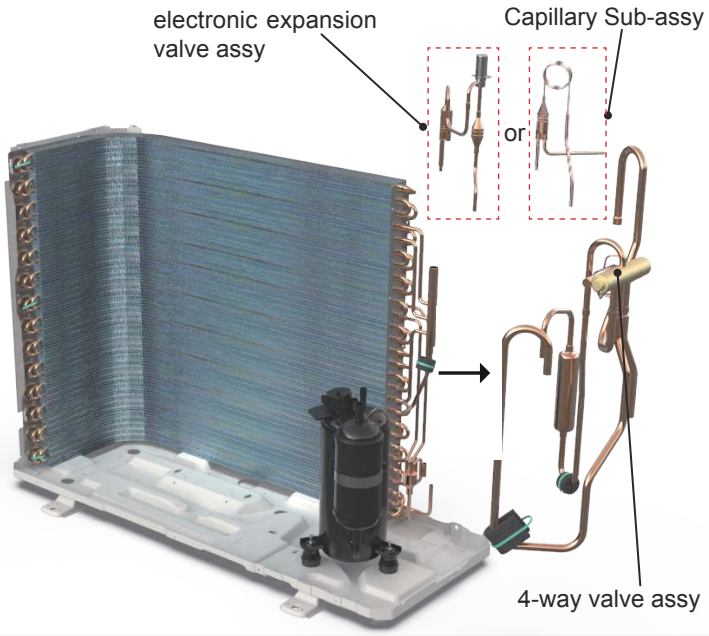
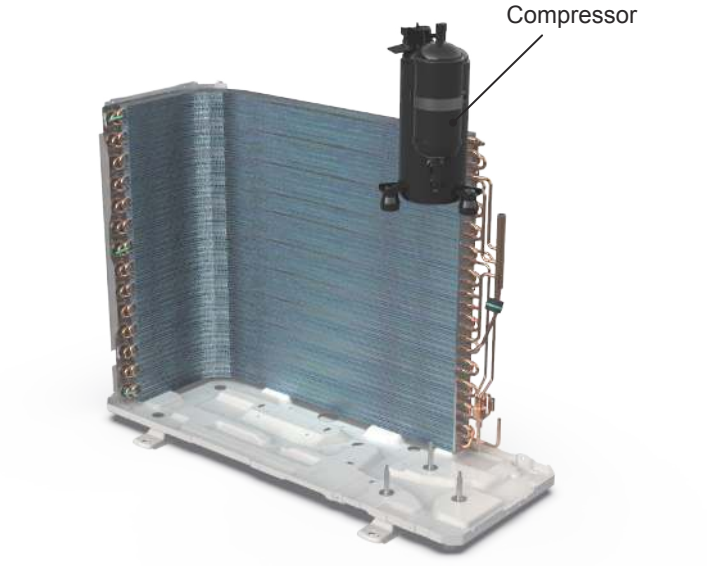
NOTE:Take heat pump for example.

⚠ **Caution: discharge the refrigerant completely before removal.**

Step	Procedure
1. Before disassembly	
2. Remove Cover of Pass Wire and valve cover Remove the screws fixing Cover of Pass Wire, valve cover and then remove them.	
3. Remove top cover Remove the screws fixing top panel and then remove the top panel.	

Step	Procedure
4. Remove front panel assy	
Remove connection screws connecting the front panel assy, and then remove the front panel assy.	
5. Remove right side plate assy	
Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right side plate, and remove the right side plate assy.	
6. Remove axial flow fan	
Remove the nut on the fan and then remove the axial flow fan.	

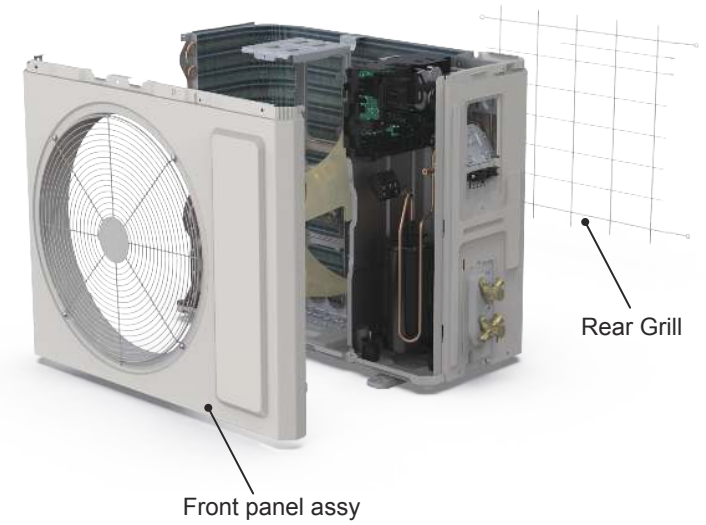
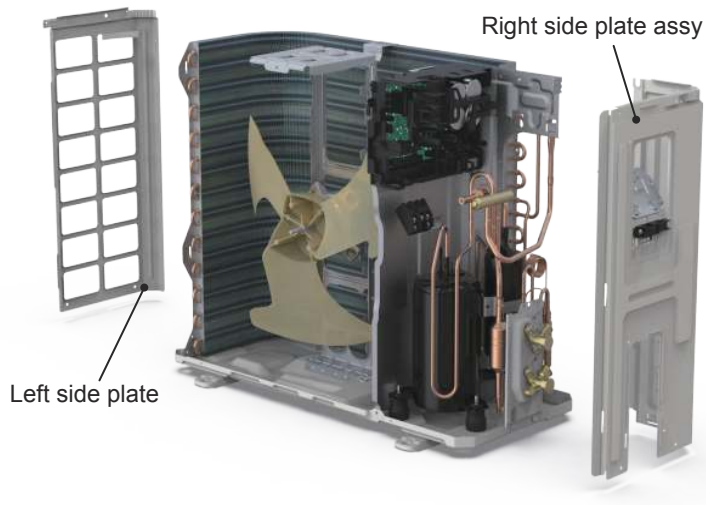
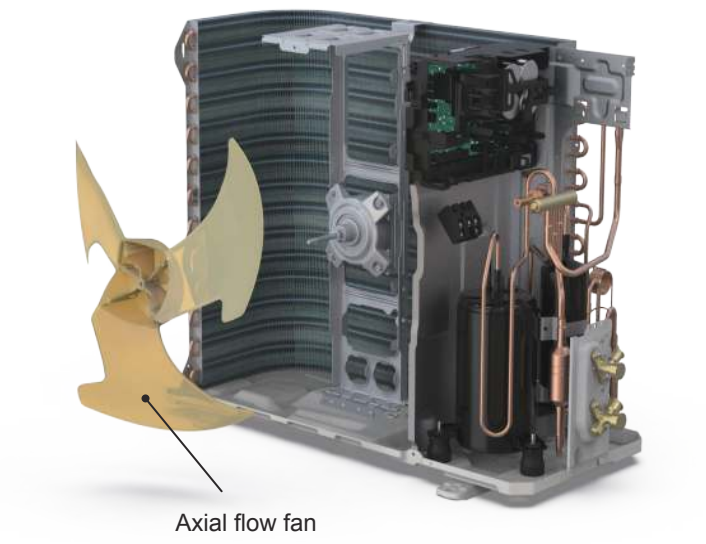
Step	Procedure
7. Remove motor and motor support	
Remove the screws fixing the motor and then remove the motor. Remove the screws fixing the motor support and lift the motor support to remove it.	
8. Remove electric box assy	
Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed.	
9. Remove clapboard assy	
Remove the screws fixing the clapboard assy and then remove the clapboard assy.	

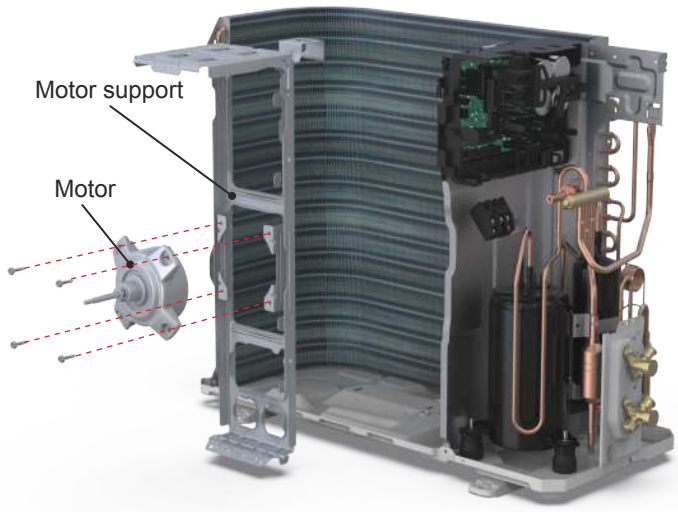
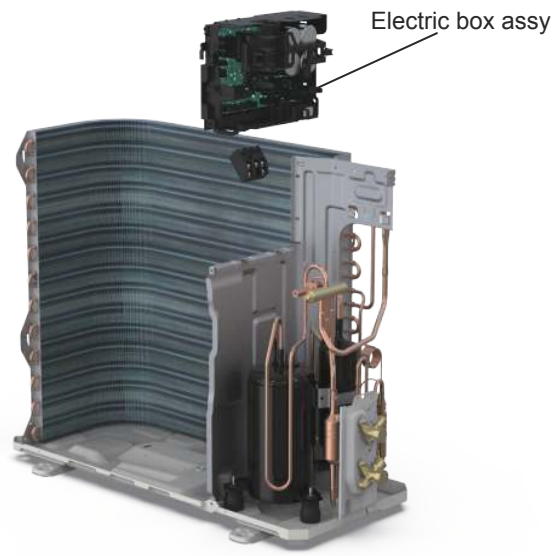
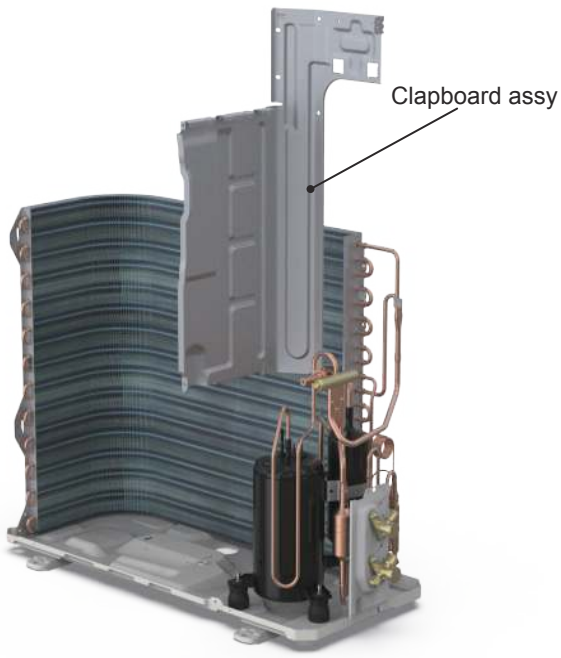
Step	Procedure
10. Remove gas valve, liquid valve and valve suppprt	
Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them. Note: Discharge the refrigerant completely befor unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature. Remove the screws fixing valve support, then remove the valve support.	
11. Remove 4-way valve assy, electronic expansion valve assy(Capillary Sub-assy)	
Unsolder the welding joints connecting the 4-way valve assy, remove the 4-way valve. Unsolder the spot weld of Capillary Sub-assy and condenser, and then remove the Capillary Sub-assy. Unsolder the spot weld of electronic expansion valve assy and condenser, and then remove the electronic expansion valve assy. Note: Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.	
12. Remove compressor	
Remove the 3 foot nuts on the compressor and then remove the compressor.	

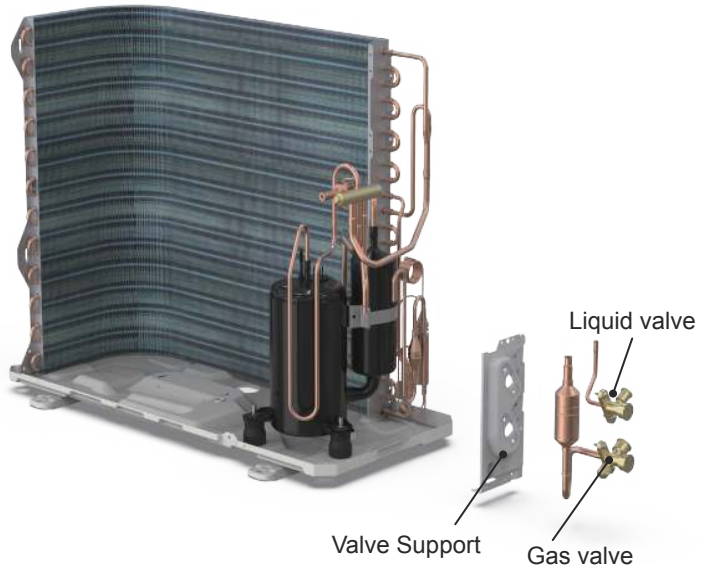
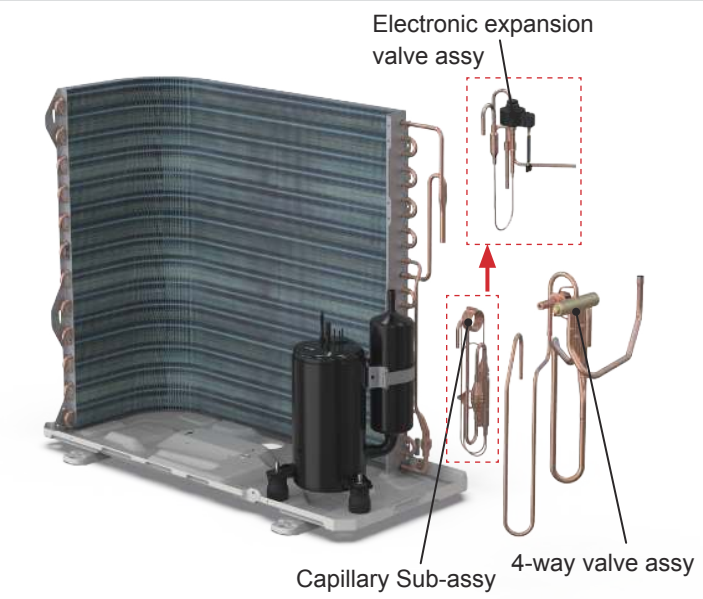
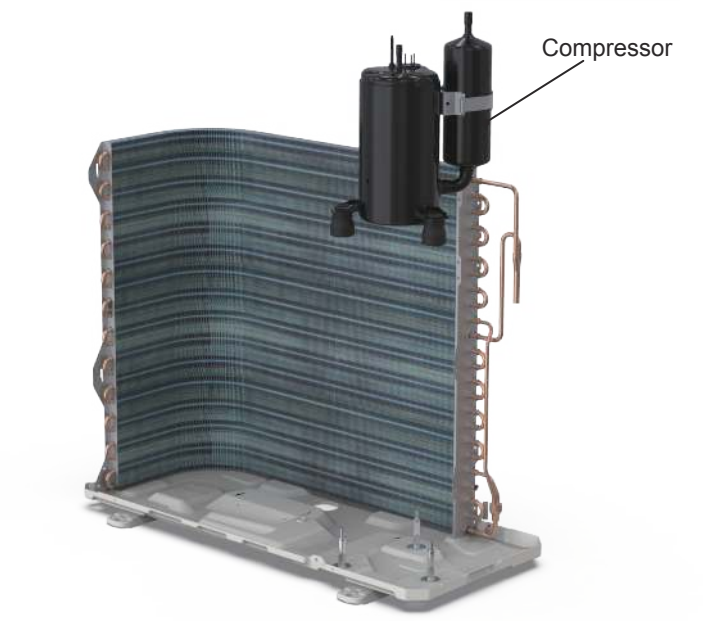
09/12K
NOTE:Take heat pump for example.

⚠ **Caution: discharge the refrigerant completely before removal.**

Step	Procedure
1. Before disassembly	
2. Remove Cover of Pass Wire and valve cover Remove the screws fixing Cover of Pass Wire, valve cover and then remove them.	
3. Remove top cover Remove the screws fixing top panel and then remove the top panel.	

Step	Procedure
4. Remove front panel assy and Rear Grill	
	Remove connection screws connecting the front panel assy and Rear Grill, and then remove the front panel assy and Rear Grill.
	
5. Remove right side plate assy and left side plate	
	Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right side plate, and remove the right side plate assy. Rescrew the screws fixing the left side plate, and remove the left side plate assy.
	
6. Remove axial flow fan	
	Remove the nut on the fan and then remove the axial flow fan.
	

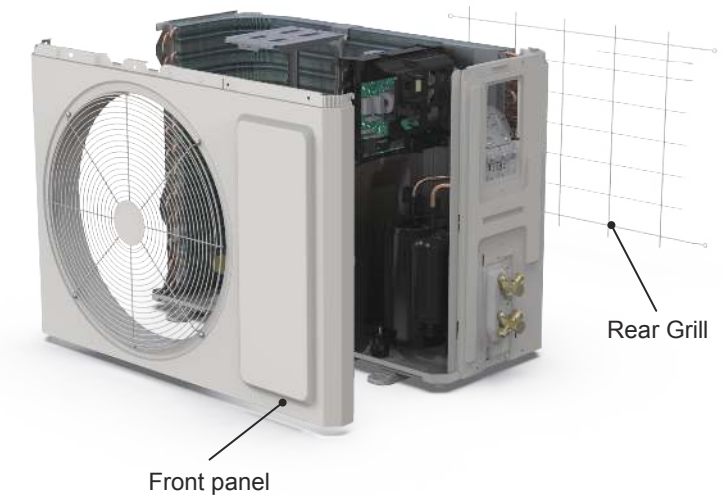
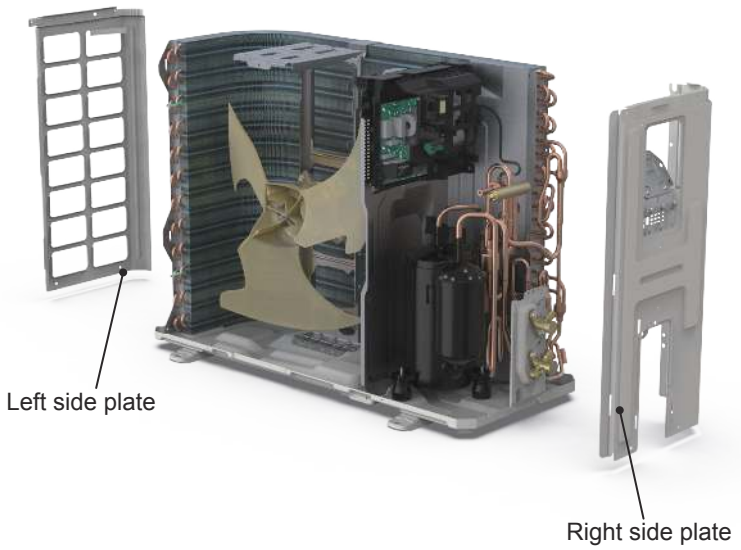
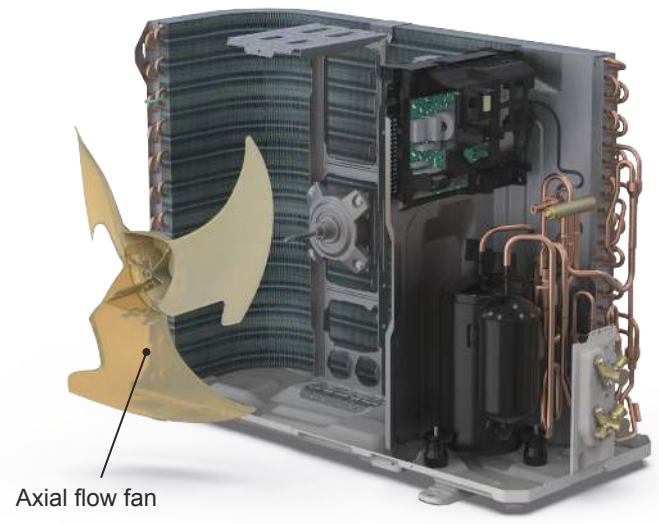
Step	Procedure
7. Remove motor support and motor	
	Remove the screws fixing the motor support and lift the motor support to remove it. Remove the screws fixing the motor and then remove the motor.
	
8. Remove electric box assy	
	Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed.
	
9. Remove clapboard assy	
	Remove the screws fixing the clapboard assy and then remove the clapboard assy.
	

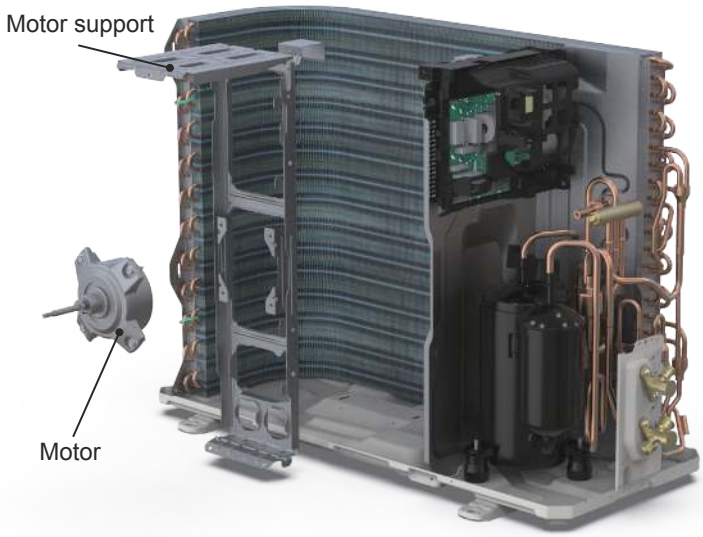
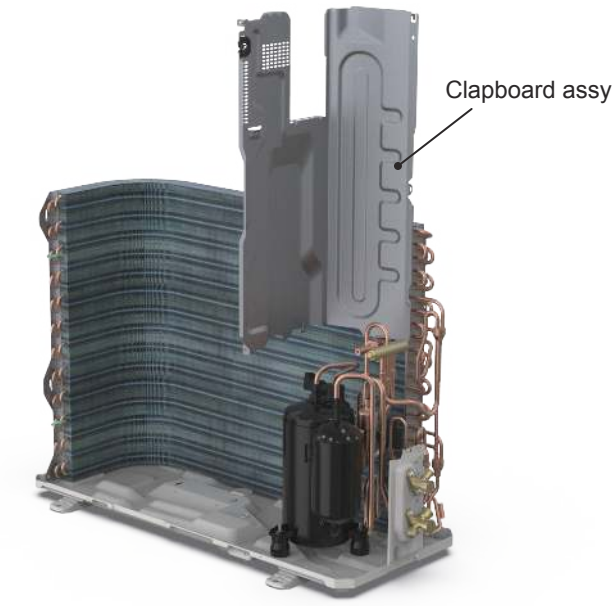
Step	Procedure
10. Remove gas valve and liquid valve	
Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them. Note: Discharge the refrigerant completely befor unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature.	
11. Remove 4-way valve and capillary Sub-assy(electronic expansion valve assy)	
Unsolder the welding joints connecting capillary Sub-assy(electronic expansion valve assy), and then remove it. Unsolder the welding joints connecting the 4-way valve assy with capillary sub-assy(electronic expansion valve assy), compressor and condenser; remove the 4-way valve and capillary Sub-assy(electronic expansion valve assy). Cooling only unit removes Discharge Tube and Inhalation Tube. Note: Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.	
12. Remove compressor	
Remove the 3 foot nuts on the compressor and then remove the compressor.	

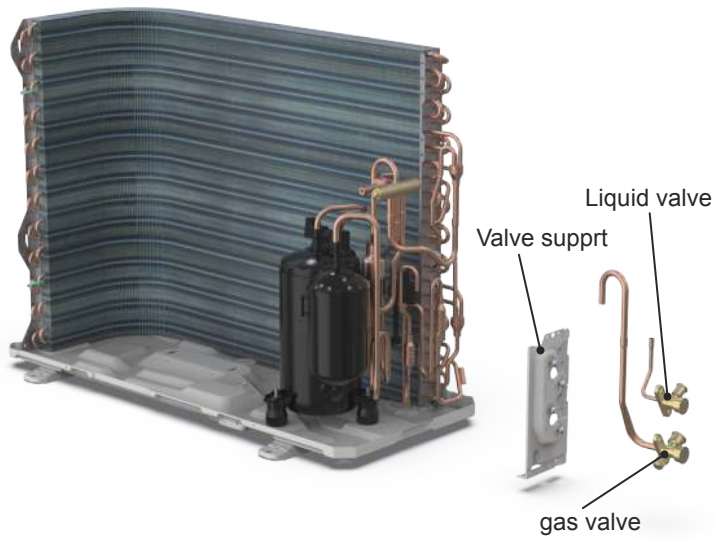
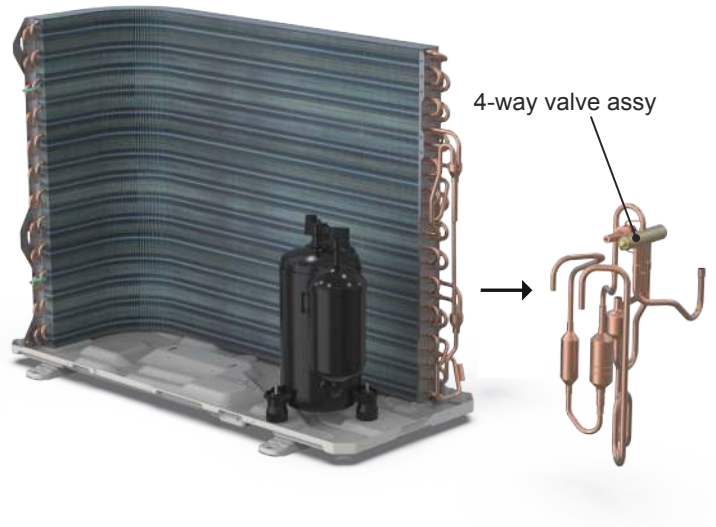
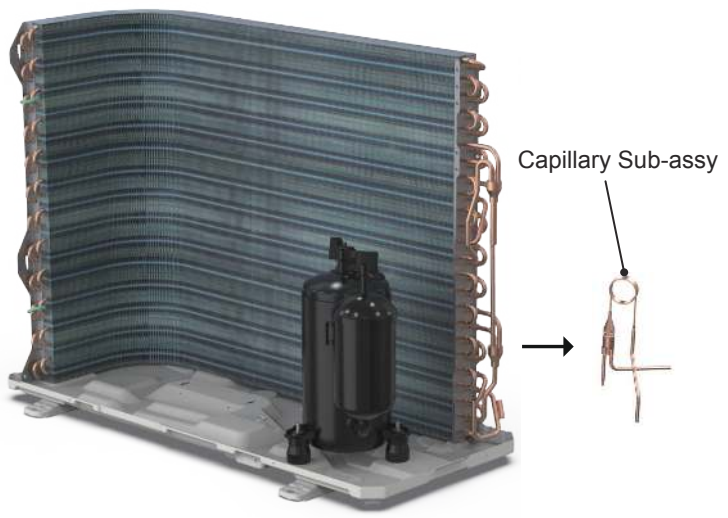
18K
NOTE:Take heat pump for example.

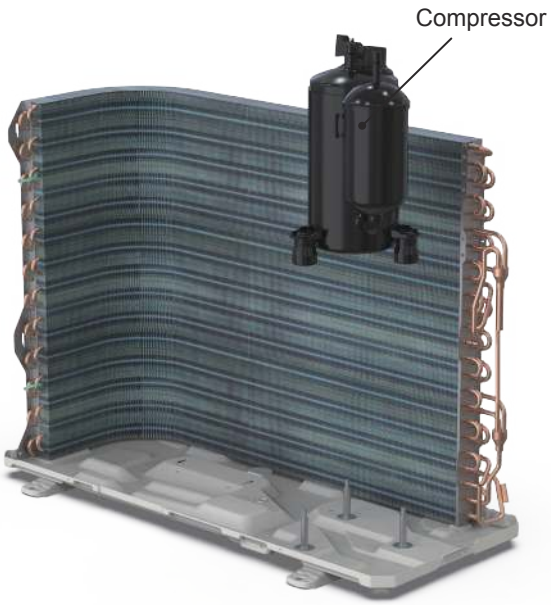
⚠ **Caution: discharge the refrigerant completely before removal.**

Step	Procedure
1. Before disassembly	
2. Remove Cover of Pass Wire and valve cover Remove the screws fixing Cover of Pass Wire, valve cover and then remove them.	
3. Remove top cover Remove the screws fixing top panel and then remove the top panel.	

Step	Procedure
4. Remove front panel assy and Rear Grill	
	Remove connection screws connecting the front panel assy and Rear Grill, and then remove the front panel assy and Rear Grill.
	
5. Remove right side plate assy and left side plate	
	Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right side plate, and remove the right side plate assy. Rescrew the screws fixing the left side plate, and remove the left side plate assy.
	
6. Remove axial flow fan	
	Remove the nut on the fan and then remove the axial flow fan.
	

Step	Procedure
7. Remove electric box assy	
Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed.	
8. Remove motor and motor support	
Remove the screws fixing the motor and then remove the motor. Remove the screws fixing the motor support and lift the motor support to remove it.	
9. Remove clapboard assy	
Remove the screws fixing the clapboard assy and then remove the clapboard assy.	

Step	Procedure
10. Remove gas valve, liquid valve and valve suppprt	
Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them. Note: Discharge the refrigerant completely befor unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature. Remove the screws fixing valve support, then remove the valve support.	
11. Remove 4-way valve assy	
Unsolder the welding joints connecting the 4-way valve assy, remove the 4-way valve. Note: Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.	
12. Remove Capillary Sub-assy	
Unsolder the spot weld of Capillary Sub-assy and condenser, and then remove the Capillary Sub-assy. Note: When unsoldering the spot weld, wrap the Capillary Sub-assy with wet cloth completely to avoid damaging the valve due to high temperature.	

Step	Procedure
13. Remove compressor	
Remove the 3 foot nuts on the compressor and then remove the compressor.	

Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

Conversion formula for Fahrenheit degree and Celsius degree: Tf=Tcx1.8+32

Set temperature

Fahrenheit display temperature（˚F）	Fahrenheit（˚F）	Celsius（˚C）	Fahrenheit display temperature（˚F）	Fahrenheit（˚F）	Celsius（˚C）	Fahrenheit display temperature（˚F）	Fahrenheit（˚F）	Celsius（˚C）
61	60.8	16	69/70	69.8	21	78/79	78.8	26
62/63	62.6	17	71/72	71.6	22	80/81	80.6	27
64/65	64.4	18	73/74	73.4	23	82/83	82.4	28
66/67	66.2	19	75/76	75.2	24	84/85	84.2	29
68	68	20	77	77	25	86	86	30

Ambient temperature

Fahrenheit display temperature（˚F）	Fahrenheit（˚F）	Celsius（˚C）	Fahrenheit display temperature（˚F）	Fahrenheit（˚F）	Celsius（˚C）	Fahrenheit display temperature（˚F）	Fahrenheit（˚F）	Celsius（˚C）
32/33	32	0	55/56	55.4	13	79/80	78.8	26
34/35	33.8	1	57/58	57.2	14	81	80.6	27
36	35.6	2	59/60	59	15	82/83	82.4	28
37/38	37.4	3	61/62	60.8	16	84/85	84.2	29
39/40	39.2	4	63	62.6	17	86/87	86	30
41/42	41	5	64/65	64.4	18	88/89	87.8	31
43/44	42.8	6	66/67	66.2	19	90	89.6	32
45	44.6	7	68/69	68	20	91/92	91.4	33
46/47	46.4	8	70/71	69.8	21	93/94	93.2	34
48/49	48.2	9	72	71.6	22	95/96	95	35
50/51	50	10	73/74	73.4	23	97/98	96.8	36
52/53	51.8	11	75/76	75.2	24	99	98.6	37
54	53.6	12	77/78	77	25			

Appendix 2: Configuration of Connection Pipe

1.Standard length of connection pipe(More details please refer to the specifications.)

2.Min length of connection pipe for the unit with standard connection pipe of 5m, there is no limitation for themin length of connection pipe. For the unit with standard connection pipe of 7.5m and 8m, the min length of connection pipe is 3m.

3.Max. length of connection pipe and max. high difference.(More details please refer to the specifications.)

4.The additional refrigerant oil and refrigerant charging required after prolonging connection pipe

● After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.

● The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):

● Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.

● Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter

Additional refrigerant charging amount for R22, R407C, R410A and R134a			
Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe	Gas pipe	Cooling only(g/m)	Cooling and heating(g/m)
1/4”	3/8” or 1/2”	15	20
1/4” or 3/8”	5/8” or 3/4”	15	50
1/2”	3/4” or 7/8”	30	120
5/8”	1" or 1 1/4”	60	120

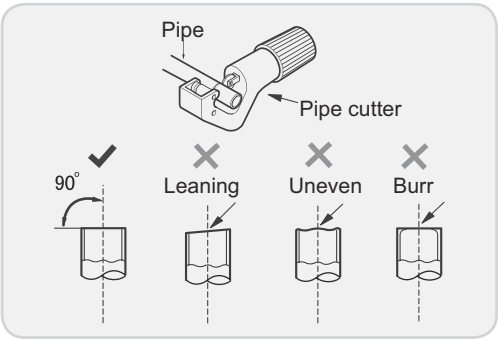
Appendix 3: Pipe Expanding Method

⚠ **Note:**

Improper pipe expanding is the main cause of refrigerant leakage.Please expand the pipe according to the following steps:

A:Cut the pip

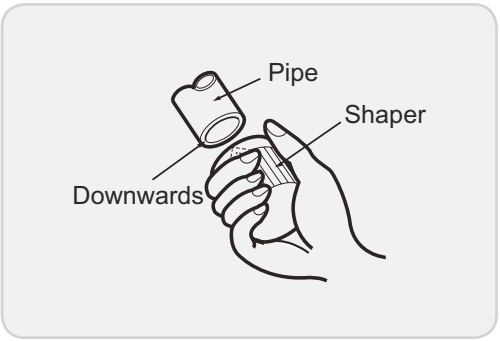
- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



B:Remove the burrs

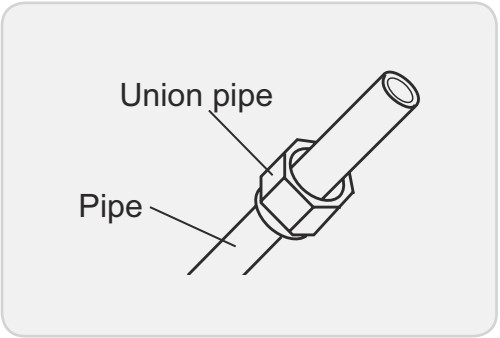
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.

C:Put on suitable insulating pipe.



D:Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



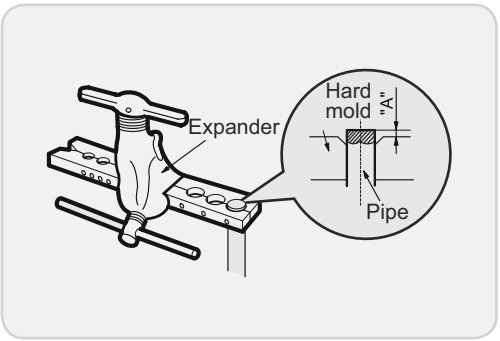
E:Expand the port

- Expand the port with expander.

⚠ **Note:**

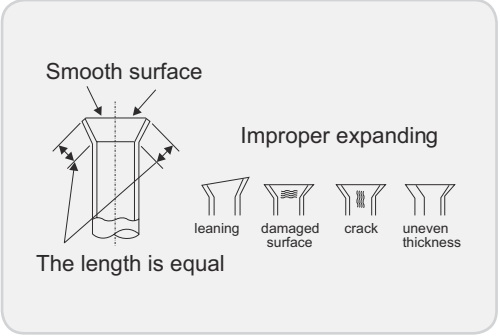
- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter(mm)	A(mm)	
	Max	Min
Φ6 - 6.35 (1/4")	1.3	0.7
Φ9.52 (3/8")	1.6	1.0
Φ12 - 12.70 (1/2")	1.8	1.0
Φ16 - 15.88 (5/8")	2.4	2.2



F:Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



Appendix 4: List of Resistance for Temperature Sensor

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units(15K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	138.10	0	49.02	20	18.75	40	7.97
-18	128.60	2	44.31	22	17.14	42	7.35
-16	115.00	4	40.09	24	15.68	44	6.79
-14	102.90	6	36.32	26	14.36	46	6.28
-12	92.22	8	32.94	28	13.16	48	5.81
-10	82.75	10	29.90	30	12.07	50	5.38
-8	74.35	12	27.18	32	11.09	52	4.99
-6	66.88	14	24.73	34	10.20	54	4.63
-4	60.23	16	22.53	36	9.38	56	4.29
-2	54.31	18	20.54	38	8.64	58	3.99

Resistance Table of Tube Temperature Sensors for Indoor and Outdoor (20K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-19	181.40	20	25.01	60	4.95	100	1.35
-15	145.00	25	20.00	65	4.14	105	1.16
-10	110.30	30	16.10	70	3.48	110	1.01
-5	84.61	35	13.04	75	2.94	115	0.88
0	65.37	40	10.62	80	2.50	120	0.77
5	50.87	45	8.71	85	2.13	125	0.67
10	39.87	50	7.17	90	1.82	130	0.59
15	31.47	55	5.94	95	1.56	135	0.52

Resistance Table of Discharge Temperature Sensor for Outdoor(50K)

Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)	Temp(°C)	Resistance(kΩ)
-30	911.400	10	98	50	17.65	90	4.469
-25	660.8	15	77.35	55	14.62	95	3.841
-20	486.5	20	61.48	60	12.17	100	3.315
-15	362.9	25	49.19	65	10.18	105	2.872
-10	274	30	39.61	70	8.555	110	2.498
-5	209	35	32.09	75	7.224	115	2.182
0	161	40	26.15	80	6.129	120	1.912
5	125.1	45	21.43	85	5.222	125	1.682



JF00305658

For product improvement, specifications and appearance in this manual are subject to change without prior notice.